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ILLUSTRATED MANUAL OF BRITISH BIRDS.

AN ILLUSTRATED MANUAL

OF

BRITISH BIRDS.

BY

HOWARD SAUNDERS, F.L.S., F.Z.S., &c.

EDITOR OF THE THIRD AND FOURTH VOLUMES OF "YARRELL'S HISTORY OF BRITISH BIRDS," FOURTH EDITION.

WITH 384 ILLUSTRATIONS AND 3 COLOURED MAPS.

SECOND EDITION, REVISED AND ENLARGED.

LONDON:

GURNEY AND JACKSON, 1, PATERNOSTER ROW.

(SUCCESSORS TO MR. VAN VOORST.)

1899.

PRINTED BY
WOODFALL AND KINDER, LONG ACRE
LONDON

PREFACE TO THE SECOND EDITION.

The First Edition, consisting of rather more than 3,000 copies, was completed in November 1889, and exhausted early in 1897. The species which were then considered as British numbered 367, but in this Second Edition the total has been raised to 384; the additions (with illustrations) being the Subalpine Warbler, Pallas's Willow-Warbler, Greenish Willow-Warbler, Radde's Bush-Warbler, Melodious Warbler, Siberian Meadow-Bunting, Gyr-Falcon, Caspian Plover, Spotted Sandpiper, Madeiran Fork-tailed Petrel, Frigate-Petrel, Collared Petrel, and Black-browed Albatross; a new cut and description of the Little Dusky Shearwater are substituted for those of *Puffinus obscurus*; and the Rufous Turtle-Dove, Siberian Pectoral Sandpiper, Yellow-legged Herring-Gull, and Levantine Shearwater are also added, although they are not figured, because of their close resemblance to species already illustrated. In the case of many of the species named in the first list, the identical British specimens have been portrayed by Mr. G. E. Lodge, who has also furnished new illustrations of the Yellow-browed Warbler, Icterine Warbler, Reed-Warbler and nest, Marsh-Warbler and nest, Red-throated Pipit, Short-eared Owl, Tawny Owl, Little Owl, Golden Eagle, Honey-Buzzard, Peregrine Falcon, Hobby, Red-footed Falcon, Osprey, Little Bittern, Mallard, Black-headed Gull, White-billed Northern Diver, Black-throated Diver and Red-throated Diver.

Of the 384 species now described, those which have bred within the United Kingdom during the present century may be taken as 199 (if the extinct Great Auk is included); about 74 non-breeding wanderers have occurred fewer than six times, and 66 others are more or less infrequent visitors; while 45 species annually make their appearance on migration or during the colder months, in some portion of our long, narrow group of islands or upon the surrounding waters.

It is hoped that the three coloured Maps will be useful for reference, especially to the traveller. The first of these shows the

comparative elevation of the land in the United Kingdom and the depth of the surrounding seas ; while, although on a small scale, it will serve as a guide to the relative positions of the various groups of islands. It may also remind the reader that, owing to the indentations of our coast, very few places in the British Islands are fifty miles distant in a straight line from tidal or brackish water : a circumstance which exercises a modifying influence on our climate—and consequently on our bird-life—during the winter months, and is in strong contrast with the extreme conditions prevalent over compact Continental areas, even further to the south. The North Polar Chart embodies the latest discoveries by Dr. Nansen and others, and it is hoped that it will be of assistance in estimating the range of the birds which breed in the Arctic regions.

The letter-press has required considerable alteration, owing to the large amount of information rendered accessible during the last nine years by such works as the 'Faunas of the Inner Hebrides and Argyll,' of the 'Orkneys,' and of the 'Moray Basin,' all three by Messrs. Harvie-Brown and T. E. Buckley ; the 'Birds of Devon,' by Messrs. D'Urban and Mathew ; the 'Birds of Pembrokeshire,' by the Rev. M. A. Mathew ; the 'Fauna of Lakeland,' by the Rev. H. A. Macpherson ; the 'Birds of Northamptonshire,' by the much-regretted Lord Lilford, and other works ; not to mention various compilations, in which there is material of value. In 1896 appeared Mr. W. Eagle Clarke's digest of the 'Observations on the Migrations of Birds at Light-houses and Light-vessels from 1880–1887,' a marvel of condensed facts ; and some of these observations are very destructive of former beliefs. For instance, it used to be supposed that the regular east-to-west migration which reached Heligoland in autumn would be in some degree continued to the British Islands, and that a reflex movement would take place in spring ; but the abstract shows that such intermigrations are the rare exception and not the rule. It is proved, however, that there is much movement from the south-east and east towards the north-west and west in autumn—and reversely in spring—across the narrowest portion of the North Sea. Another former fancy was that the migration of many species of birds depended upon the direction of the wind ; but this, again, is only true to a very limited extent, and it has been demonstrated that certain meteorological conditions at the point of departure are the prime factors controlling the seasonal movements. Practically the wind is not of great importance, for although birds cannot fly in the teeth of an absolute gale, they can sail uncommonly close to any reasonable wind.

The grant from the British Association in aid of these observations is no longer given, but the light-keepers continue to take an interest in the subject of migration, and excellent reports are still received privately from many localities, especially in Scotland and Ireland. Mr. R. M. Barrington has kindly placed the schedules for Ireland at my disposal, and many valuable facts, expressed perhaps in this book in only two or three words, are derived from these records. As regards foreign countries, the geographical distribution of many species has been re-written, owing to increase of knowledge; but the inexorable limits of space will not permit of the enumeration of the authors nor the titles of their communications. As bearing upon general ornithology, one recent master-piece may be mentioned—Professor Newton's 'Dictionary of Birds.'

One of the most pleasing circumstances connected with the progress of this Edition has been the generous manner in which information and assistance have been absolutely pressed upon me. I cannot give the names of all who have placed me under obligations, but I should like to mention Col. H. W. Feilden, Lieut.-Col. H. L. Irby, the Rev. H. A. Macpherson, Professor Newton, Dr. R. B. Sharpe, the Rev. H. H. Slater, Messrs. O. V. Aplin, R. M. Barrington, E. Bidwell, F. E. Blaauw, G. Bolam, T. E. Buckley, Abel Chapman, J. Cordeaux, H. S. Davenport, W. H. Dobie, H. E. Dresser, E. A. S. Elliot, Henry Evans (Derby), W. R. Ogilvie Grant, J. H. Gurney, G. H. Caton Haigh, J. E. Harting, J. A. Harvie-Brown, R. J. Howard, Reginald Lodge, E. C. Phillips, H. L. Popham, Thomas Southwell, and Robert Warren. There are four more who deserve special thanks:—namely, Mr. R. J. Ussher, who has taken great pains to furnish me with the latest information respecting Irish birds; Messrs. W. Eagle Clarke and William Evans, who have not only sent valuable notes and criticisms, but have also read a large portion of the proofs; and Mr. A. H. Evans of Cambridge, who has gone over every proof-sheet, as he did in the First Edition. And in thanking all my correspondents, I express the hope that our joint labours may be of service to the student of ornithology.

H. S.

7, *Radnor Place, Hyde Park, W.*
11th April, 1899.

INTRODUCTION.

The scientific arrangement followed in this work is mainly in accordance with that of 'The List of British Birds compiled by a Committee of the British Ornithologists' Union.' There are, of course, differences of opinion respecting the *relative* position of some of the Families which make up the Order Passeres, such as the Corvidæ; but nearly all modern systematists are agreed that the highest avian development is attained in that Order. The Passeres therefore, as being the most specialized of birds, should occupy either the first place in a descending arrangement (such as that set forth by Mr. P. L. Sclater in 'The Ibis' for 1880 and widely adopted in the Old World), or else the last in a scheme of ascent from the lowest and most reptilian birds. Nearly fifteen years ago, the latter found favour, even in a somewhat crude form, in the United States; and it has received increasing acceptance in Europe, owing to its elaboration by Professor Bronn, Dr. Hans Gadow and Professor Fürbringer, while it has been adopted by Mr. A. H. Evans in his new volume 'Birds,' of the Cambridge Natural History. There is much to be said in its favour, but such a complete change would hardly commend itself to the readers of a work which has been playfully named 'The Boy's Yarrell'; and it therefore seems preferable to adhere to the highly-sanctioned scheme of commencing with the Passeres. To attain some approach to uniformity, my own views have been subordinated to those of the majority of the Committee of the B.O.U. as regards the positions of the Corvidæ and the Alaudidæ, as well as on some other unessential points.

It must be remembered that this work is merely a Manual, intended to convey as much information *up to date* as may be practicable in *one volume*; and it would be foreign to my purpose to increase its bulk by a treatise on the Orders and Families of Birds; yet a brief outline has been given of the characteristics of the Genera, although even this forms no essential part of the scheme of the work. The beginner will do well to bear in mind that, although systematists may be fairly agreed as regards the com-

ponents of the Orders and Families, much diversity of opinion exists respecting the validity of many of the Genera which have been proposed and even adopted; nor is this surprising, for, after all, a generic name is mainly—and often purely—a matter of convenience. According to the Rules for Nomenclature which are known as the Stricklandian Code, a genus should be based upon some structural character; but pattern of coloration and even general habits have often been allowed to carry weight when anatomical distinctions would have proved insufficient by themselves to attain the desired end—namely, generic separation. On the other hand, important structural characters have often been passed over when these were not apparent in preserved skins; and finally, there are many genera which are highly artificial.

Order PASSERES.

Family TURDIDÆ.

Subfamily TURDINÆ.

Young in first plumage differ from the adults in having the upper and under parts spotted. Only one moult, in autumn.

TURDUS, *Linnæus.*—Bill moderate, straight, convex above; point of the upper mandible compressed, notched, and slightly decurved; gape furnished with a few hairs. Nostrils basal, lateral, oval, partly closed by a membrane. Wings with the first or 'bastard' quill very short; the second shorter than the third or the fourth, one of which is generally the longest of all. Tail rather long. Tarsus longer than the middle toe; outer toe connected with the middle toe at the base (p. 1).

MONTICOLA, *Boie.*—Bill stout, straight, the ridge arched towards the point; gape almost hairless. Nostrils basal, round, partly covered with hairs. Wings moderate; the first quill short, the second a little shorter than the third, which is longest. Feet moderately stout. Tail short and even (p. 17).

SAXICOLA, *Bechstein.*—Bill straight, broad at the base; the upper mandible receding towards the forehead, compressed towards the tip, which is decurved and more or less indented. Nostrils basal, supernal and oval. Gape with a few hairs. Wings with the first quill very short, the third or fourth the longest; coverts and scapulars short. Tarsus long, covered in front by one long scale, to which succeed two or three shorter scutellæ; the outer toe partly united to the middle toe; hind claw short, strong and curved (p. 19).

PRATINCOLA, *K. L. Koch.*—Bill shorter and broader than in *Saxicola*; bristles at the gape strongly developed. Wings and tail rather short (p. 27).

RUTICILLA, *C. L. Brehm.*—Bill slender, compressed towards the point, a little deflected and very slightly emarginated; gape with tolerably large bristles.

Nostrils basal, supernal and nearly round. Wings moderate ; the first quill short ; the second equal to the sixth ; the third, fourth and fifth nearly equal, and one of them the longest. Legs slender, the tarsus longer than the middle toe, and covered in front by a single scale and three inferior scutellæ (p. 31).

CYANECULA, *C. L. Brehm.*—Differs from the above in having few and very small bristles at the gape, four inferior scutellæ on the tarsus, and a short middle toe. Practically, this genus is based on the blue colour of the throat, and a desire to separate the members of this little group from the Redstarts (p. 35).

ERITHACUS, *Cuvier.*—Bill narrow and depressed at the base, inflected towards the point, the upper mandible slightly notched. Nostrils basal, lateral and oval. Gape beset with bristles. Wings rounded ; the first quill only half as long as the second, which is shorter than the third ; the fourth, fifth and sixth nearly equal, and longest. Legs long and slender ; the tarsus with a single scale in front and three inferior scutellæ ; the outer toe a little longer than the inner, and united at its base to the middle toe ; the hind toe longer and stronger than the others. Plumage generally soft (p. 37).

DAULIAS, *Boie.*—Bill moderate, straight ; the tip slightly deflected and emarginated. Nostrils basal, supernal and round. Wings moderate ; the first quill very short, the second longer than the fifth, the third the longest. Tail rounded. Tarsus long and slender, covered in front by a single scale and four inferior scutellæ ; toes long ; claws rather short (p. 39).

Subfamily SYLVIINÆ.

Young on leaving the nest differ very slightly in colour from the adults.

SYLVIA, *Scopoli.*—Bill rather stout, short, not very broad at the base ; upper mandible decurved from the middle towards the point, which is slightly emarginated ; nostrils basal, lateral, oval and exposed ; gape furnished with bristles. Wings moderate ; the first quill very short. Tail of twelve feathers, generally rounded. Tarsus scaled in front and longer than the middle toe ; toes and claws short (p. 41).

REGULUS, *Cuvier.*—Bill slender, straight, the edges dilated at the base, compressed towards the point, which is notched. Nostrils basal, supernal and oval, covered by a single bristly feather directed forwards ; the internasal ridge stout ; the gape beset with hairs. Wings rather long ; the first quill nearly half the length of the second, the fourth the longest. Tail of twelve pointed feathers, slightly forked. Tarsus slender and rather long, covered in front by a single scale ; toes moderate, the outer and middle toes joined at their base ; claws much curved (p. 57).

PHYLLOSCOPUS, *Boie.*— Bill slender, rather short, upper mandible decurved from the middle and compressed towards the slightly notched tip ; nostrils basal, lateral, oblong and partly operculate, the membrane clothed with small bristle-tipped feathers, the internasal ridge very thin ; gape beset with hairs. Wings rather long ; the first quill comparatively large, the third or fourth the longest. Tail slightly forked. Tarsus scaled in front and rather long, as are also the toes ; claws curved (p. 61).

AËDON, *Boie.*—Bill long and strong, with the culmen curved and much compressed at the tip, hardly notched ; nostrils supernal, small and oval ; the

gape without bristles. Wings with the first quill short, the second nearly equal to the third and fourth, which are longest. Tail long and rounded. Tarsus long, with broad scales in front; the inner toe nearly as long as the outer (p. 73).

Lusciniola, *G. R. Gray.*—Bill stout, rictal bristles strong, supplementary feathers do not cover the nostrils as in *Phylloscopus*; bastard primary about half the length of the second, third to fifth about equal and longest (p. 73*).

Hypolais, *C. L. Brehm.*—Bill stout, very wide at the base, the edges straight, somewhat compressed towards the tip, which is slightly emarginated. Nostrils basal, oblique, oval and exposed. Wings rather long and pointed, the first quill very short, the third usually the longest. Tail slightly rounded. Tarsus short; toes small; the claws short but much curved (p. 75).

Acrocephalus, *J. A. Naumann.*—Bill more or less straight, with the culmen elevated, wide and flattened at the base, compressed towards the tip, and slightly emarginated; nostrils as above; bristles at the gape moderately developed. Forehead narrow and depressed. Wings rather short; the first quill minute, the third generally the longest. Tail rounded and rather long. Legs long; toes large and stout, the hind toe strong; claws long and moderately curved (p. 79).

Locustella, *Kaup.*—Differs from the above chiefly in having the bristles at the gape very small, a more rounded tail, and longer under tail-coverts. Prof. Newton states that the tendons of the tibial muscles are strongly ossified in this genus (p. 89).

Subfamily Accentorinæ.

Accentor, *Bechstein.*—Bill strong, broad at the base, rather conical; the upper mandible overlapping the lower and slightly notched near the tip. Nostrils basal, oblique and linear. Wings moderate, more or less rounded; the first quill very short, the third generally the longest. Legs strong; the tarsus feathered at the upper end, and covered in front with several broad scales; the outer toe joined at its base to the middle toe; the claw of the hind toe much the longest (p. 93).

Family CINCLIDÆ.

Cinclus, *Bechstein.*—Bill moderate, slightly ascending, angular, and higher than broad at the base; straight, compressed and rounded near the tip; the upper mandible slightly decurving at the point. Nostrils basal, lateral, placed in a depression, cleft longitudinally, and partly covered by a membrane. Gape very narrow, and without bristles. Wings short, broad and convex; the first quill very short; the second not so long as the third or fourth, which are nearly equal. Tail short. Legs feathered to the tibio-tarsal joint; tarsus longer than the middle toe; the lateral toes equal in length, the outer toe slightly connected with the middle toe. The whole body closely covered with down. Sternum with the posterior margin entire (p. 97).

Family PANURIDÆ.

Panurus, *K. L. Koch.*—Bill short, subconical, upper mandible convex above, decurved from the base, broader and considerably longer than the lower,

which is almost straight; the edges of both somewhat inflected and not notched. Nostrils basal, oval, pointed in front, and partly covered by reflexed bristly feathers. Wings with ten quills, the first almost obsolete, the third longest, but the fourth and fifth nearly equal to it. Tail very long and graduated. Tarsus long and scutellated in front; claws not much hooked (p. 99).

Family PARIDÆ.

ACREDULA, *K. L. Koch.*—Bill very short, strong, much compressed, both mandibles curved, the upper considerably longer than the lower. Nostrils basal, round, concealed by the plumage. Eyelids with broad bare margins. Wings with ten quills, gradually increasing in length from the first to the fourth and fifth, which are the longest. Tail very long, narrow and graduated, the outer feathers being only about one-third of the length of the middle pair. Tarsus long and scutellated; toes moderate; the anterior toes united so far as the second joint, the outer toe longer than the inner, the hind toe stout and armed with a long hooked claw (p. 101).

PARUS, *Linnæus.*—Bill strong, straight, rather conical, slightly compressed, upper mandible hardly longer than the lower and not notched. Nostrils basal, round, covered with reflexed bristly feathers. Wings with ten quills, the first short, the fourth or fifth the longest. Tail moderate, even or slightly rounded. Tarsus moderate and scutellated; toes as in preceding genus (p. 103).

Family SITTIDÆ.

SITTA, *Linnæus.*—Bill moderate, strong, and slightly conical, the lower mandible ascending from the angle to the point. Tongue short and horny, the tip abrupt and furnished with strong bristles. Nostrils basal, rounded, placed in a deep hollow, covered by hairs and short feathers. Wings rather long; the first quill much shorter than the second, the fourth or fifth the longest. Tail short, flexible, broad, and nearly square. Legs short and stout, the tarsus scutellated; toes long and strong—the hind toe especially, the outer toe joined at its base to the middle toe; claws large and much hooked (p. 113).

Family TROGLODYTIDÆ.

TROGLODYTES, *Vieillot.*—Bill moderate, compressed, slightly curved, without any notch, and pointed. Nostrils basal, oval, partly covered by a membrane. Wings very short, concave, rounded; the first quill rather short, the fourth or fifth the longest. Tail generally short; its feathers soft and rounded. Tarsus rather long and strong; the middle toe united at the base to the outer toe, but not to the inner toe; hind toe rather long; claws long, stout and curved. Plumage long and soft (p. 115).

Family CERTHIIDÆ.

CERTHIA, *Linnæus.*—Bill rather long, slender, compressed, curved downwards and pointed; nostrils basal, lateral, elongated and partly covered by a membrane. Wings moderate and rounded; the first feather short, the fourth and fifth the longest. Tail of twelve feathers, long, stiff, pointed, and slightly curved downwards. Feet large, the tarsus slender; the fore toes long and

united at the base as far as the first joint, their claws moderate but much curved; the hind toe short, but with a long curved claw. Plumage soft and thick, especially on the upper parts (p. 117).

TICHODROMA, *Illiger.*—Bill long, slender, slightly decurved and pointed; nostrils elongated. Wings long and broad. Tail of twelve rounded feathers and square in shape. Tarsus rather slender; toes long; claws much curved, especially the long hind claw (p. 119).

Family MOTACILLIDÆ.

(Wings with only nine clearly visible primaries).

MOTACILLA, *Linnæus.*—Bill slender, nearly straight, very slightly notched at the tip; the mandibles nearly equal in length and their edges slightly compressed inwards. Nostrils basal, lateral, oval, and partly concealed by a membrane. Wings moderate; the first quill acuminate and nearly obsolete, the second, third and fourth nearly equal and one of them the longest, the fifth considerably shorter; inner secondaries very long, one of them about equal to the fifth primary. Tail of twelve feathers, long and nearly even. Tarsus scutellated in front, much longer than the middle toe, which is joined to the outer toe at its base; toes moderate; claws short, except that of the hind toe which is somewhat elongated (p. 121).

ANTHUS, *Bechstein.*—Bill and nostrils as in the above genus. Wings moderate; the first primary acuminate and nearly obsolete, the second, third and fourth nearly equal and one of them the longest, the fifth in some species almost as long; outer secondaries short, inner secondaries very long, equal to or occasionally exceeding the fifth primary. Tail of twelve feathers, moderate and slightly forked. Tarsus scutellated in front, about as long as the middle toe, which is joined to the outer toe at its base; toes rather long; claws moderate, except that of the hind toe which in some species is very much elongated (p. 131).

Family ORIOLIDÆ.

ORIOLUS, *Linnæus.*—Bill moderately long, conical, and decurving to the point, near which it is notched; nostrils basal, lateral, naked, pierced horizontally in an extended membrane. Wings long; the first quill much shorter than the second, the third the longest. Tail moderate, slightly rounded. Tarsus covered in front with broad plates; toes with large scutellæ; claws arched, and laterally grooved (p. 145).

Family LANIIDÆ.

LANIUS, *Linnæus.*—Bill short, thick and straight at the base, compressed; upper mandible hooked at the point, with a prominent tooth; base of the bill beset with hairs directed forwards. Nostrils basal, lateral, oval. Wings of moderate size; the first quill shorter than the second, the third usually the longest. Tarsus longer than the middle toe, which is united at its base to the outer toe (p. 147).

Family AMPELIDÆ.

AMPELIS, *Linnæus.*—Bill strong, short and straight; broad at the base; both mandibles slightly hooked at the tip, and the upper one notched. Gape

wide, without bristles. Nostrils basal, oval and large, partly concealed by closely-set feathers directed forwards. Feathers of the head forming an elongated erectile crest. Wings long, with ten primaries, the first very minute, the second the longest, but the third nearly equal to it. Tail short and almost even. Tarsus scutellated in front, and shorter than the middle toe with its claw; toes stout. Plumage very soft (p. 155).

Family MUSCICAPIDÆ.

MUSCICAPA, *Linnæus.*—Bill of moderate length, broad and depressed at the base; compressed and slightly curved towards the point. Nostrils basal, lateral, and partly concealed by the frontal plumes. Gape beset with bristles. Wings long and pointed; the first primary very short, the second rather shorter than the third, fourth and fifth, which are the longest. Tarsus about the same length as the middle toe, which is much longer than the lateral toes; all the toes small (p. 157).

Family HIRUNDINIDÆ.

(Wings with nine clearly visible primaries, long and pointed).

HIRUNDO, *Linnæus.*—Bill short, depressed, and very wide at the base, commissure straight. Nostrils basal, oval, partly closed by a membrane. Tail deeply forked, of twelve feathers, the outermost greatly elongated and abruptly attenuated. Tarsus slender and bare; toes rather long, three in front, one behind; claws moderate (p. 163).

CHELIDON, *Boie.*—Bill short, depressed, and very wide at the base, commissure slightly decurved. Nostrils basal, oval, partly closed by a membrane and opening laterally. Tail forked, of twelve feathers, the outermost not abruptly attenuated. Tarsus slender, closely feathered above the toes, which are rather long, three in front, one behind; claws moderate, sharp (p. 165).

COTILE, *Boie.*—Bill short, depressed, and very wide at the base, commissure straight. Nostrils, wings and tail as above. Tarsus slender and bare, except a tuft of feathers on the tarsus just above the hallux; toes moderate, three in front, one behind; claws strong (p. 167).

Family FRINGILLIDÆ.

(Wings with nine clearly visible primaries).

Subfamily FRINGILLINÆ.

Bill strong, the outline of the commissures even.

LIGURINUS, *K. L. Koch.*—Bill hard, short, conical, compressed towards the tip, with a scarcely perceptible notch at the point; nostrils basal, concealed by stiff feathers directed forwards. Wings rather pointed, the first quill obsolete, the second, third and fourth nearly equal and longest. Tail rather short, slightly forked. Tarsus scutellated in front; toes moderate; claws arched and laterally grooved (p. 169).

COCCOTHRAUSTES, *Brisson.*—Bill nearly conical, very thick at the base, tapering rapidly to the point; culmen more or less rounded; the mandibles nearly equal, edges inflected and slightly indented. Nostrils basal, lateral, oval,

nearly hidden by projecting and recurved frontal plumes. Wings with the first quill obsolete, the third and fourth primaries nearly equal, the sixth, seventh, and eighth curved outwards. Tail short, and nearly square. Tarsus scutellated in front, covered at the sides with a single plate, stout and short; claws moderately curved, rather short and strong (p. 171).

CARDUELIS, *Brisson.*—Bill nearly conical but slightly compressed, the point slender and sharp. Nostrils basal, lateral, round, and hidden by projecting and recurved plumes. Wings rather long and pointed; the first primary obsolete; the second, third, and fourth nearly equal, but the second the longest. Tail more or less moderate, and forked. Tarsus short and rather stout, scutellated in front, covered at the sides by a single plate; claws moderate (p. 173).

SERINUS, *K. L. Koch.*—Bill strong, short, somewhat conical, but very broad at the base and with the distal half suddenly diminishing to the tip; mandibles nearly equal in size, but the upper a little longer than the lower; edges plain. Nostrils basal, supernal, round, and hidden by projecting and recurved frontal plumes. Gape straight. Wings with the first primary so small as to seem wanting; the second, third, and fourth nearly equal, but the third a trifle the longest. Tail moderate, rather deeply forked. Tarsus slender, and shorter than the middle toe, scutellated in front, covered at the sides by a single plate; claws small and rather weak (p. 177).

PASSER, *Brisson.*—Bill somewhat conical, but bulging above and below, longer than deep; upper mandible larger than the lower, edges nearly plain. Nostrils basal, lateral, rounded, almost hidden by projecting and recurved frontal plumes. Gape straight. Wings with the first primary small and attenuated but distinctly developed, the third or fourth rather the longest, but the second, third and fourth—sometimes even the fifth—not very unequal. Tail moderate or short, and nearly square. Tarsus stout, nearly as long as the middle toe, scutellated in front, covered at the sides by a single plate; claws moderately curved, rather short (p. 179).

FRINGILLA, *Linnæus.*—Bill hard, straight, somewhat long, nearly conical, but bulging slightly, and pointed; mandibles nearly equal, edges plain. Nostrils basal, lateral, oval, partly hidden by projecting and recurved frontal plumes. Gape straight. Wings with the first primary obsolete, the second always shorter than the third, which, or the fourth, is longest in the wing. Tail moderately long and decidedly forked. Tarsus stout, rather short, scutellated in front, covered at the sides with a single plate; claws moderately curved, rather short (p. 183).

LINOTA, *Linnæus.*—Bill hard, nearly conical, but slightly swollen; the point slender and sharp. Nostrils basal, round, and hidden more or less by projecting and recurved plumes. Gape nearly straight. Wings long, somewhat pointed; the first primary obsolete, the second, third, and fourth nearly equal, and either the second or third the longest in the wing. Tail rather long and forked. Tarsus short, scutellated in front, covered at the sides by a single plate; toes stout; claws moderate, the hind claw rather large (p. 187).

PYRRHULA, *Brisson.*—Bill hard, short, broad, and thick at the base, bulging at the sides; culmen rounded; upper mandible considerably longer than the lower, and overhanging its point. Nostrils basal, round, hidden by plumelets. Gape slightly arched. Wings rather short; the first primary obsolete,

the third or fifth the longest in the wing. Tail moderate, square or forked. Tarsus scutellated in front, covered at the sides by a single plate ; toes stout ; claws moderately curved, rather short (p. 195).

Loxia, *Linnæus.*—Bill hard, strong, thick at the base, much compressed towards the tip, the lower mandible curving upwards and its point crossing that of the upper mandible. Nostrils round, basal, hidden by thick projecting bristly plumes. Wings long, pointed ; the first primary very small but visible, the second generally the longest. Tail short, forked. Tarsus short and stout, scutellated in front ; toes short ; claws moderately curved (p. 201).

Subfamily Emberizinæ.

Angle of the lower mandible strongly marked, and a distinct gap in the outline of the closed bill.

Emberiza, *Linnæus.*—Bill hard, conical and short ; the upper mandible not wider than the lower, the edges of both inflected and those of the latter gradually cut away ; the palate generally furnished with a projecting bony knob. Nostrils oval, basal, and placed somewhat near the culmen, partly hidden by small feathers. Gape angular. Wings moderate ; first primary minute, second, third and fourth nearly equal. Tail rather long and slightly forked. Tarsus scutellated in front, covered at the sides with an undivided plate forming a sharp ridge behind, almost as long as the middle toe ; claws considerably curved, that of the hind toe of moderate length (p. 205).

Calcarius, *Bechstein.*—Bill with considerably inflected cutting edges ; claws of the front toes short and slightly curved ; hind claw nearly straight and elongated ; other characters much as in the previous genus (p. 223).

Plectrophenax, *Stejneger.*—Bill with the upper mandible narrower than the lower, the edges of both inflected and those of the latter sinuated ; the palate furnished with a projecting bony knob. Nostrils as in *Emberiza.* Wings long and pointed ; the first primary minute, second and third nearly equal and the longest in the wing, but the fourth considerably longer than the fifth. Tail moderate and slightly forked. Tarsus about as long as the middle toe. Front claws rather long and curved ; hind claw considerably curved and elongated (p. 225).

Family STURNIDÆ.

Sturnus, *Linnæus.*—Bill as long as the head, almost straight, blunt at the tip, depressed so as to be wider than high ; edges of the upper mandible extending over those of the lower, and both quite smooth. Nostrils basal and partly covered by an operculum. Gape angular and free from bristles. Feathers of the head and anterior part of the body pointed and elongated. Wings long, pointed, with ten primaries ; the first minute and attenuated, the second and third nearly equal and the longest. Tail short, the feathers diverging at the tip. Tarsus scutellated in front, covered at the sides by an undivided plate, forming a sharp ridge behind ; claws short and moderately curved (p. 227).

Pastor, *Temminck.*—Bill moderate, convex above, straight beneath, compressed, the upper mandible notched and slightly decurved. Nostrils basal, partly closed by a membrane covered with small feathers. Feathers on the crown

pointed and elongated, forming a crest. Wings as in *Sturnus*. Tail moderate, the feathers mostly rounded at the tips. Tarsus scutellated in front, covered at the sides by an indistinctly divided plate, forming a sharp ridge behind; claws rather more curved than in *Sturnus* (p. 229).

Family CORVIDÆ.

PYRRHOCORAX, *Tunstall.*—Beak slender, compressed, arched and pointed. Nostrils basal, hidden by small, closely-set feathers. Wings long and graduated; the first primary much shorter than the second, and about half as long as the third, the fourth the longest. Tail nearly even. Tarsus longer than the middle toe, to which the outer toe is united as far as its first joint; claws strong and much curved (p. 231).

NUCIFRAGA, *Brisson.*—Beak about as long as the head, hard, stout and straight, dilated at the base; both mandibles terminating obtusely. Nostrils basal, round, hidden by stiff feathers directed forwards. Feathers of the crown short. Wings graduated, the fifth primary being the longest. Tail slightly rounded. Tarsus longer than the middle toe, to which the outer toe is united at the base (p. 233).

GARRULUS, *Brisson.*—Beak shorter than the head, hard, stout and compressed, straight at the base, sharp at the edges, commissure straight. Nostrils basal, hidden by stiff feathers directed forwards. Feathers of the crown long and erectile. Wings moderate, rounded; the first primary short and not attenuated, the fourth, fifth and sixth nearly equal, and one of them the longest in the wing. Tail moderately long and rounded. Nostrils, tarsi and toes much as in *Nucifraga* (p. 235).

PICA, *Brisson.*—Beak stout and compressed, straight at the base, arched towards the point, and slightly notched near the tip of the upper mandible. Nostrils as in *Nucifraga*. Wings short and rounded; the first primary attenuated for two-thirds of its length and very short, the fourth or fifth the longest. Tail very long and graduated. Tarsus longer than the middle toe, to which the outer toe is united as far as its first joint (p. 237).

CORVUS, *Linnæus.*—Beak more or less stout, compressed, straight at the base, arched towards the point and sharp at the edges. Nostrils basal, generally hidden by stiff feathers directed forwards. Wings long and graduated; the first primary much shorter than the second, the fourth the longest. Tail more or less graduated. Tarsus longer than the middle toe, to which the outer toe is united as far as its first joint (p. 239).

Family ALAUDIDÆ.

Tarsus scutellated behind as well as before.

ALAUDA, *Linnæus.*—Bill moderate to stout, slightly compressed at the edges; upper mandible more or less arched from the middle and without notch. Nostrils basal, oval, covered by bristly feathers directed forward. Gape straight. Wings long: the first primary usually short but sometimes well developed; second, third and fourth nearly equal, but the third generally the longest. Tail moderate and slightly forked. Tarsus longer than the middle toe; claws slightly curved and moderate, except that of the hind toe, which is often elongated and nearly straight (p. 249).

Otocorys, *Bonaparte.*—Bill rather short, subconic; upper mandible slightly arched. Head—in the adult male—with a tuft of long, erectile feathers on either side of the occiput. Wings long; the first primary infinitesimal, the second the longest, the fourth decidedly shorter; outer secondaries short and emarginate at the tip. Tail rather long, slightly forked. Tarsus shorter than the middle toe; claws moderate and very slightly curved, that of the hind toe being comparatively straight (p. 259).

Order PICARIÆ.

Family CYPSELIDÆ.

Cypselus, *Illiger.*—Bill very short, wide, triangular at its base and depressed; culmen and commissure much decurved; gape extending behind the eyes. Nostrils longitudinal, the edges raised and furnished with small feathers. Wings with ten curved primaries, very long and pointed, the first shorter than the second, but a little longer than the third. Tail of ten feathers, somewhat deeply forked. Tarsus very short, feathered in front; toes four, all ordinarily directed forwards, the middle and outer with three phalanges only; claws short, large, and much curved (p. 261).

Acanthyllis, *Boie.*—Wings very long, narrow and pointed. Tail short, even; the feathers terminated by long sharp spines. Tarsus bare in front and not scutellated; one toe directed backwards. Otherwise much as in preceding genus (p. 265).

Family CAPRIMULGIDÆ.

Caprimulgus, *Linnæus.*—Bill very short, flexible, broad at the base, much compressed at the point; gape very wide; upper mandible decurved at the tip, and beset on each side with a row of moveable bristles directed forward; lower mandible upturned at the tip, so as to meet the upper at the point, leaving an open space further back. Nostrils basal, with a prominent membranaceous rim, clothed with very small feathers. Wings long, with ten primaries, the second the longest. Tail of ten feathers, long and slightly rounded. Tarsus short, feathered in front for two-thirds of its length; feet with three toes before and one behind, the anterior united as far as the first joint, the posterior turned inwards at right angles, inner and outer toes equal, the latter with but four phalanges; claws short, except that of the middle toe, which is long and pectinated on the inner edge (p. 267).

Family PICIDÆ.

Subfamily IÿNGINÆ.

Iÿnx, *Linnæus.*—Bill shorter than the head, straight, nearly conical, sharp at the tip. Nostrils basal, linear, partly closed by a membrane. Tongue capable of protrusion, the tip horny and smooth. Wings moderate; the first primary minute, the third or fourth the longest. Tail rounded, of twelve feathers, the outer pair minute, with straight shafts and webs of ordinary character. Tarsus strong, slightly feathered above in front; toes, two before and two behind, the fourth—which is turned backwards—about as long as the third; a peculiar heel-pad; claws hooked, grooved and sharp (p. 271).

Subfamily PICINÆ.

GECINUS, *Boie.*—Bill about as long as the head, hard, broad at the base, compressed at the tip; upper mandible slightly arched, ending abruptly, with a shallow groove on each side running parallel to and near the culmen, and longer than the lower mandible, which is pointed, and has the gonys nearer the tip than the base, and the tomia rounded. Nostrils basal, oval, covered with hair-like feathers directed forwards. Tongue capable of great protrusion, beset at the tip with horny barbs. Wings moderate; the first primary very short, the fourth longest, but the fifth nearly equal to it. Tail of twelve graduated feathers; the outer pair very short and overlying the next, which, with the rest, are pointed and have stiff, decurved shafts with hard webs. Tarsus strong, slightly feathered above in front; toes, two before and two behind, the fourth—which is turned backwards—equal to the third; claws strongly hooked, grooved and very sharp. Prevailing colour of the plumage greenish (p. 273).

DENDROCOPUS, *K. L. Koch.*—Bill pyramidal, laterally bevelled at the tip. The fourth toe much longer than the third. Otherwise much as in preceding genus. Prevailing colours, black, white and red (p. 275).

Family ALCEDINIDÆ.

ALCEDO, *Linnæus.*—Bill long, hard, straight, quadrangular and acute. Nostrils basal, oblique, nearly closed by a bare membrane. Wings short and rounded, of ten primaries; the second or third the longest, but the first nearly equal to them and longer than the fourth. Tail very short, of twelve feathers. Tarsus short; toes, three before and one behind, the middle united to the outer toe as far as the second joint and to the inner as far as the first joint, hind toe not much shorter than the inner (p. 279).

Family CORACIIDÆ.

CORACIAS, *Linnæus.*—Bill stout, hard, compressed, with cutting edges slightly inflected; upper mandible decurved at the tip; gape wide. Nostrils lateral, linear and oblique, partly hidden by a plumose membrane. Lores beset in front by a row of stiff bristles. Post-ocular space bare. Wings long, of ten primaries; the first a little shorter than the second or third—which are the longest—but rather longer than the fourth. Tail of twelve feathers, rather long. Tarsus short, broadly scutellated in front; toes free, three before and one behind; claws stout (p. 281).

MEROPS, *Linnæus.*—Bill rather long, slightly decurved, and tapering to a point, the culmen elevated. Nostrils basal, lateral, oval, covered by hairs directed forwards. Wings long, of ten primaries; the second and third the longest. Tail rather long, of twelve feathers, the central pair elongated and pointed. Tarsus short; toes small, three before and one behind, the middle united to the outer toe as far as the second joint, and to the inner as far as the first joint (p. 283).

Family UPUPIDÆ.

UPUPA, *Linnæus.*—Bill long, slender, slightly arched, sharp, and much compressed. Nostrils basal, oval, partly concealed by feathers. Tongue very short and heart-shaped. Head with an erectile crest of oblong feathers set

regularly in pairs for the whole length. Wings moderately long and very broad, with ten primaries; the first about half as long as the second, which is nearly an inch shorter than the third, the fourth or fifth the longest. Tail of ten feathers, almost square at the end. Tarsus scutellated behind as well as in front; three toes before and one behind, the outer and middle united as far as the first joint (p. 285).

Family CUCULIDÆ.

CUCULUS, *Linnæus.*—Bill short and sub-cylindrical, culmen somewhat decurved, upper mandible slightly notched near the tip, lower mandible nearly straight beneath; gape wide. Nostrils basal, circular, with a prominent membranaceous rim. Wings with ten primaries; the third longest, the innermost three shorter than the first. Tail of ten feathers; the outer three pairs graduated, the middle two nearly equal. Tarsus short and feathered for nearly half the length; toes, two before and two behind (p. 287).

COCCYSTES, *Gloger.*—Bill moderate, compressed towards the tip, culmen decurved, cutting edges smooth; lower mandible slightly decurved beneath; gape moderate. Nostrils basal, oval, the upper part closed by a membrane. Head crested. Wings with ten primaries; the third longest, but the fourth nearly its equal, the ninth as long as—and the tenth shorter than—the first. Tail of ten feathers, long and graduated. Tarsus strong and long, bare behind, slightly feathered above in front; toes, two before and two behind (p. 289).

Order STRIGES.

Family STRIGIDÆ.

STRIX, *Linnæus.*—Bill straight at the base, decurved only towards the point; cutting-margins of the upper mandible nearly straight, under mandible notched. Nostrils oval, oblique. Facial disk large and complete, narrowing rapidly below the eyes towards the beak. Auditory opening square, large, and furnished with a large and nearly rectangular operculum, stiffened with the shafts of small feathers. Head smooth, not furnished with tufts. Wings long and ample; the first and third quills equal and nearly as long as the second, which is the longest. Tail short. Legs long and slender, clothed with downy feathers to the origin of the toes, which are furnished only on the upper surface with a few bristle-like feathers; hind toe reversible; claws long and grooved underneath, that of the middle toe pectinated on the inner edge (p. 291).

ASIO, *Brisson.*—Bill decurved from the base; cere large; under mandible notched. Nostrils oval, oblique. Facial disk complete. Conch of the ear extremely large, with a semicircular operculum running the whole length in front, and a raised margin behind; auditory openings asymmetrical. Wings long, the second quill generally the longest. Legs and toes feathered to the claws. Head furnished with two tufts, more or less elongated (p. 293).

SYRNIUM, *Savigny.*—Bill decurved from the base. Nostrils large. Facial disk large and complete; auditory openings large and symmetrical, furnished in front with a large crescentic operculum. Wings short and rounded; the first quill very short, the fourth the longest. Tail long, concave beneath. Legs and toes feathered. Head large, round and without tufts (p. 297).

NYCTALA, *C. L. Brehm.*—Bill short, decurved from the base; cere rudimentary; nostrils nearly circular; under mandible notched. Ear-conches large, asymmetrical, and furnished in front with a well-developed operculum. Head large, the asymmetry of the aural region extending to the skull. Facial disk large and nearly complete. Wings long, rounded. Tail short. Tarsus and toes thickly feathered (p. 299).

ATHENE, *Boie.*—Bill decurved from the base; cere short and swollen; nostrils oval; lower mandible sinuated. Auditory conch large, the orifice small and without an operculum. Facial disk not well defined. Wings large, the third and fourth quills nearly equal in length. Tarsus long, covered with short feathers; toes above with bristles only, instead of feathers. Head round, large, and without tufts (p. 301).

NYCTEA, *Stephens.*—Bill decurved from the base; nostrils large, oval; cere short; upper mandible smooth, lower mandible notched. Facial disk incomplete. Orifice of the ears moderate, without operculum. Wings of moderate size; the third quill the longest, second and fourth nearly equal. Tail rounded and of moderate length. Tarsus and toes thickly covered with feathers. Head large, round, not furnished with tufts of feathers (p. 303).

SURNIA, *Duméril.*—Bill decurved from the base and much hidden by feathers; nostrils small and rounded; cere short; upper mandible slightly undulated; lower mandible notched. Facial disk nearly obsolete. Orifice of the ears small, without operculum. Wings short; first quill equal to seventh, second longer than fifth, third and fourth longest and nearly equal. Tarsus rather short and—with the toes—thickly feathered. Tail long and graduated. Head flat and without tufts (p. 305).

SCOPS, *Savigny.*—Bill much decurved from the base, cere small, under mandible notched. Nostrils round. Facial disk incomplete above the eyes; auditory conch small, and without an operculum. Wings long, reaching to the end of the tail. Tarsus rather long, feathered in front; the toes naked. Head furnished with two tufts of feathers (p. 307).

BUBO, *Duméril.*—Bill short, strong, curved, compressed at the point. Nostrils pierced in the cere, large, oval or rounded. Facial disk incomplete. Auditory opening small, oval, without an operculum. Wings rather short. Tarsus and toes covered with feathers; claws long. Head furnished with two tufts of feathers (p. 309).

Order ACCIPITRES.

Family VULTURIDÆ.

GYPS, *Savigny.*—Bill strong, thick, and deep, with a short cere, culmen somewhat abruptly hooked. Nostrils naked and oval. Head slender and covered with short down, as is most part of the neck; above the shoulders a ruff of elongated feathers. Wings long; the first quill short, the fourth the longest. Tail of twelve or fourteen feathers. Legs and feet strong; claws slightly hooked; toes long, the middle toe rather exceeding the tarsus and united at its base to the outer toe by a membrane (p. 311).

NEOPHRON, *Savigny.*—Bill straight, slender, elongated, rounded above, encircled at the base by a long naked cere; upper mandible with straight edges,

hooked at the tip; under mandible blunt, and shorter than the upper. Nostrils near the middle of the beak, elongated, longitudinal. Head and neck partly bare of feathers. Wings rather pointed, the third quill the longest. Tail of fourteen feathers. Tarsus reticulated; three toes before, one behind; anterior toes united at the base (p. 313).

Family FALCONIDÆ.

CIRCUS, *Lacépède.*—Bill small, bending from the base, compressed and elevated; cutting-edges of the upper mandible with a slight festoon. Cere large. Nostrils oval, partly concealed by the hairs radiating from the lores. Lower part of the head surrounded by a ruff of small thick-set feathers. Wings long; the first quill very short, the third and fourth the longest. Tail long. Tarsus long, slender, and naked; toes rather short, and not very unequal; claws slightly curved, and very sharp (p. 315).

BUTEO, *Lacépède.*—Bill rather small and weak, bending from the base, part of the cutting edges of the upper mandible slightly projecting; cere large; nostrils oval. Wings with the first quill short, about equal in length to the seventh, the fourth the longest; the first four feathers with the inner edge deeply notched. Tarsus short, strong, usually scaled, but occasionally feathered and reticulated; toes short, claws strong (p. 321).

AQUILA, *Brisson.*—Bill strong, of moderate length, curved from the cere, pointed, the cutting edges nearly straight. Nostrils oval, lateral, directed obliquely downward and backward, or sometimes circular. Wings large and long, the fourth quill the longest. Tarsus feathered to the junction of the toes, hind surface reticulated; toes strong, the last phalanx of each toe covered by large scales; claws hooked (p. 325).

HALIAËTUS, *Savigny.*—Bill elongated, strong, straight at the base, curving in a regular arc in advance of the cere to the tip and forming a deep hook, upper ridge broad and rather flattened. Nostrils oval, perpendicular. Wings ample, the fourth quill the longest. Tarsus feathered to the joint; the front of the naked part scutellated, and the sides and back reticulated. Toes divided to their origin; claws strong and hooked, grooved beneath; the claw of the hind toe larger than that of the inner, which again exceeds either of the others (p. 329).

ASTUR, *Lacépède.*—Bill short, bending from the base; cutting edge of the upper mandible forming a festoon. Nostrils oval. Wings short, reaching only to the middle of the tail-feathers, the fourth quill the longest. Tarsus stout, covered in front with broad scales. Toes moderate; the middle toe somewhat the longest, the lateral toes nearly equal, but the inner claws considerably larger than the outer claw (p. 331).

ACCIPITER, *Brisson.*—Bill bending from the base, short, compressed, superior ridge rounded and narrow, cutting margin of the upper mandible with a distinct festoon. Nostrils oval. Wings short; the fourth and fifth quill-feathers nearly equal in length, and the longest. Tarsus long, slender, and smooth. Toes long and slender, particularly the middle toe; claws curved and sharp (p. 333).

MILVUS, *Lacépède.*—Bill straight at the base, curved from the cere to the point, cutting margin with a slight festoon. Nostrils oval, oblique. Wings long, the third or fourth quill the longest. Tail long and forked. Tarsus short.

Toes short and strong; the outer toe united at its base to the middle toe, but slightly reversible. Claws moderately long and curved (p. 335).

PERNIS, *Cuvier*.—Bill slender, rather weak, curved from the base, the cutting edges of the upper mandible nearly straight; cere large; nostrils elongated, placed obliquely; lores closely covered with small scale-like feathers. Wings long and large; the first quill short, the third and fourth the longest; inner webs of the first four deeply notched. Tail long. Tarsus short, half of it plumed, the rest reticulated; toes of moderate length and strength; claws slender and only slightly curved (p. 339).

FALCO, *Linnæus*.—Bill short, curved from its base; a strong projecting tooth on each cutting edge of the upper mandible. Wings long and pointed; the first and third quills of equal length, the second longest. Tarsus short, robust, reticulated; toes long, strong, armed with curved and sharp claws (p. 341).

PANDION, *Savigny*.—Bill short, strong, rounded and broad; cutting edges nearly straight. Nostrils oblong-oval, oblique. Wings long, second and third quills longest. Legs strong and muscular; tarsus short, reticulated. Toes free, nearly equal, the outer toe reversible; all armed with strong, curved, and sharp claws; under surface of the toes rough and covered with small pointed scales. Feathers wanting the aftershaft (p. 359).

Order STEGANOPODES.

Family PELECANIDÆ.

PHALACROCORAX, *Brisson*.—Bill moderate or long, straight, compressed, culmen rounded; upper mandible much curved at the point, hooked; the base connected with a membrane which extends to the throat. Face and throat naked. Nostrils basal, linear, hidden. Wings moderate, the third quill the longest. Tail of twelve or fourteen stiff and rigid feathers. Legs strong, short, placed far back; three toes in front, and a hind toe articulated on the inner surface of the tarsus, all four united together by membranes; claw of the middle toe serrated on the inner edge (p. 361).

SULA, *Brisson*.—Bill strong, long, forming an elongated cone, very large at its base, compressed towards the point, which is slightly curved; edges of the mandibles serrated; angle of the gape behind the line of the eyes. Face and throat naked. Nostrils basal, obliterated. Wings long, first quill the longest. Tail wedge-shape. Legs strong, short, placed rather far back; three toes in front, and a hind toe articulated to the inner surface of the tarsus, all four united by membranes; claw of the middle toe pectinated (p. 365).

Order HERODIONES.

Family ARDEIDÆ.

ARDEA, *Brisson*.—Bill long, strong, straight, compressed in a lengthened cone; upper mandible slightly grooved on each side; nostrils lateral, basal, pierced longitudinally in the groove, and half closed by a membrane. Wings moderate, the second quill the longest. Tail of twelve feathers, short, nearly even. Legs long, slender, naked above the tarsal joint; tarsus scutellated in

front ; three toes in front, the outer united to the middle one by a distinct membrane, one toe behind, directed inwards ; claws long, compressed, sharp, the middle claw pectinated on the inside (p. 367).

NYCTICORAX, *Stephens.*—Bill about the same length as the head, bulky, strong, broad, and dilated at the base ; upper mandible with the culmen curved, and notched near the tip ; under mandible straight. Nostrils longitudinal, lateral, but little in advance of the base of the beak, placed in a groove, and partly covered by a membrane ; lore and orbits naked. Tail of twelve broad and moderately hard feathers. Legs of moderate length, bare for a short distance above the tarsal joint ; tarsus longer than the middle toe, with hexagonal scutellæ in front ; the outer and middle toe united by a membrane ; claws short, that of the middle toe pectinated (p. 379).

ARDETTA, *G. R. Gray.*—Bill longer than the head, slender, pointed, serrated. Nostrils basal, linear, longitudinal ; space in front of the eye bare. Wings broad, rather rounded ; the second quill barely longer than the first, and a little longer than the third. Tail of ten soft feathers, short and rounded. Legs rather short, the tibia feathered nearly to the joint ; tarsus anteriorly scutellated ; the middle toe and claw about the length of the tarsus, and its claw pectinated on the inner edge (p. 381).

BOTAURUS, *Stephens.*—Bill rather longer than the head, strong, higher than broad, the mandibles of equal length, upper mandible curved downwards. Nostrils basal, linear, longitudinal, lodged in a furrow, and partly covered by a naked membrane. Wing long, rather rounded, the first three quills the longest and nearly equal. Tail of ten soft feathers. Legs of moderate length ; tarsi scutellated ; toes long and slender, all unequal, the middle toe and claw longer than the tarsus ; hind toe long, articulated with the inner toe and on the same plane ; claws long, especially the hind claw, that of the middle toe pectinated (p. 383).

Family CICONIIDÆ.

CICONIA, *Brisson.*—Bill longer than the head, straight, strong, and pointed. Nostrils pierced longitudinally in the horny substance. Eyes surrounded by a naked skin. Wings rather large, the first quill shorter than the second, the third and fourth quills the longest in the wing. Plumage without powder-down tracts. Tail short and slightly rounded. Legs long ; feet with four rather short toes, the three in front united by a membrane as far as the first joint, the hind toe elevated ; claws short, broad, obtuse, the middle claw not pectinated (p. 387).

Family IBIDIDÆ.

PLEGADIS, *Kaup.*—Bill long, slender, decurved, large at the base, the point depressed, obtuse, rounded ; upper mandible deeply grooved throughout its length. Nostrils on the upper surface and near the base of the beak, oblong, narrow, pierced in the membrane which covers part of the aperture. Face and lores without feathers. Wings moderate ; the first quill shorter than the second and third, which are the longest. Tail of twelve feathers, moderate, even. Legs rather long, naked above the tarsal joint ; tarsus plated in front ; three toes in front, one behind ; the anterior toes united by a membrane, hind toe long and resting its length on the ground. Plumage more or less Stork-like, wanting the powder-down tracts of the Herons (p. 391).

Family PLATALEIDÆ.

PLATALEA, *Linnæus.*—Bill long, and much flattened, dilated at the point and rounded in the form of a spoon ; upper mandible channelled and transversely grooved at the base. Nostrils on the upper surface of the beak, near together, oblong, open, bordered by a membrane. Forehead, lores, orbits and chin naked. Wings rather large ; the third quill nearly as long as the second, which is the longest. Legs long and robust ; three toes in front, united as far as the second articulation by a membrane, the marginal edge of which is deeply incised ; hind toe long (p. 393).

Order ODONTOGLOSSÆ.

Family PHŒNICOPTERIDÆ.

PHŒNICOPTERUS, *Brisson.*—Bill longer than the head, abruptly bent in the middle ; edges of both mandibles furnished with fine transverse plates (lamellæ). Nostrils, linear, sub-basal. Neck very long and slender. Wings moderately long, the first quill slightly the longest ; the inner secondaries longer than, and folding over, the closed primaries. Tail short, even. Legs very long and slender ; the chief portion of the tibia bare ; tarsus broadly scutellated ; toes short, the three anterior ones palmated, with incised webs ; hind toe elevated, free, and small ; claws flattened and obtuse (p. 395).

Order ANSERES.

Family ANATIDÆ.

ANSER, *Brisson.*—Bill nearly as long as the head, sub-conical, elevated at the basal portion, which is covered with a cere or skin ; a conspicuous nail (unguis) at the tip ; under mandible smaller than the upper. Nostrils lateral, placed towards the middle of the beak. Wings large, the second quill longest. Tail of sixteen feathers. Tarsus moderately long ; the hind toe free, without a lobe, articulated upon the tarsus ; the three anterior toe united by a membrane. Sexes alike in plumage (p. 397).

CHEN, *Boie.*—Bill shorter than the head, very robust, and higher than broad at the base ; culmen slightly convex, the outline of the lower mandible decidedly so, leaving an elliptical space displaying the lamellæ. Nostrils sub-basal. Feathers on the neck less conspicuously furrowed than in true *Anser*. Wings long, full, the second quill the longest. Tail rather short and rounded. Tibia feathered to the joint ; tarsus moderately long, reticulated ; three anterior toes connected by a membrane ; hind toe short and elevated. Sexes alike in plumage (p. 405).

BERNICLA, *Boie.*—Bill much shorter than the head, sub-conical, higher than broad at the base, narrowing to the tip ; nail broadly ovate ; edges of the bill nearly straight, scarcely showing the margins of the lamellæ. Nostrils oval, placed in the anterior portion of the nasal depression, near the centre of the bill. Feathers on the neck narrow, blended. Wings large, the second quill usually the longest. Tail short, rounded. Legs short and stout, the tarsus reticulated ; the three anterior toes long, united by a membrane ; hind

toe small and elevated ; claws small, that on the middle toe broadly rounded. Sexes alike in plumage (p. 407).

CYGNUS, *Bechstein.*—Bill of equal breadth throughout its length, higher than wide at the base, depressed at the point ; both mandibles furnished along the sides with transverse lamellæ. Lores chiefly naked. Nostrils oblong, lateral, near the middle of the beak. Neck slender and very long. Legs short, the tarsus reticulated ; the three front toes fully webbed ; the hind toe small, free, and without lobe. Sexes alike in plumage (p. 413).

TADORNA, *Fleming.*—Bill about the length of the head, higher than broad at the base, depressed or concave in the middle, breadth nearly equal throughout ; under mandible much narrower than the upper, and the latter grooved near the tip ; nail decurved, forming a hook ; both mandibles furnished with thin transverse lamellæ. Nasal groove near the base of the beak ; nostrils oval, lateral, pervious. Wings of moderate length, the second quill the longest. Legs moderate ; the tibiæ naked for a short space above the tarsal joint ; three toes entirely webbed in front, and one behind free. Sexes nearly alike in plumage (p. 419).

ANAS, *Brisson.*—Bill about as long as the head, broad, depressed, sides parallel, sometimes partially dilated ; both mandibles furnished on the inner edges with transverse lamellæ. Nostrils small, oval, lateral. Wings rather long, pointed. Tail wedge-shaped. Legs rather short, placed under the centre of the body ; tarsus somewhat rounded ; three toes in front, connected by membranes ; hind toe free, without pendant lobe or membrane. The sexes differ in plumage (p. 423).

SPATULA, *Boie.*—Bill much longer than the head, compressed at the base, widening towards the end ; lamellæ projecting conspicuously from the base to near the broadest part. Wing pointed, the first and second quills the longest. Tail short, graduated, of fourteen pointed feathers. Legs very short ; hind toe small, free, without a lobe. The sexes differ in plumage (p. 427).

DAFILA, *Stephens.*—Bill about as long as the head, the edges nearly parallel, but widening a trifle towards the end ; lamellæ not very strongly defined. Neck long and slender. Wings long and pointed, the first and second quills sub-equal and longest, the rest rapidly graduated. Tail sharply pointed, the central feathers considerably elongated in the male. Legs rather short ; hind toe small ; margin of web to anterior toes slightly emarginate. The sexes differ in plumage (p. 429).

NETTION, *Kaup.*—Bill moderate ; not gradually tapering towards the tip, where it is somewhat broad and rounded, no crest, nor any falcate inner secondaries. Otherwise similar to *Querquedula.*

QUERQUEDULA, *Stephens.*—Bill about as long as the head, wider towards the end ; nail broad and large. Nostrils small and oblong. Wings rather long, pointed, the first and second quills sub-equal and longer than the rest ; scapulars and inner secondaries elongated and pointed. Tail of sixteen feathers, short and rounded. Legs short ; tarsus compressed, anteriorly scutellated ; hind toe very small, outer toe much shorter than the third, middle toe rather long ; interdigital membrane emarginated ; claws small, somewhat curved. The sexes differ in plumage (p. 434).

Mareca, *Stephens.*—Bill considerably shorter than the head, higher than broad at the base, gradually depressed and narrowed towards the point; culmen slightly concave; lamellæ only just visible. Wings rather long and pointed; the first and second quills longer than the rest. Tail short and pointed. Legs short, the lower part of the tibia bare; hind toe with a very narrow lobe; feet rather small. Sexes differ in plumage (p. 437).

Netta, *Kaup.*—Bill long, tapering; the upper mandible indentated; lamellæ broad, prominent and distant. Nostrils about one-third of the distance from the base to the tip. Wings of moderate length, pointed. Male with a well-developed occipital crest. Otherwise as in *Fuligula* (p. 441).

Fuligula, *Stephens.*—Bill not longer than the head, but slightly elevated at the base, depressed towards the tip, sides parallel; both mandibles laminated, lateral edges of the upper mandible enclosing the edges of the under one. Nostrils at a short distance from the base. Wings rather short, pointed. Legs with the middle and outer toes longer than the tarsus, which is flattened laterally; feet large, webbed; the hind toe with a broad lobe. Sexes differ in plumage (p. 443).

Clangula, *Leach.*—Bill much shorter than the head, higher than broad at the base, depressed towards the nail, which is elliptical and decurved at the tip; lamellæ hidden by the overhanging edge of the upper mandible. Nostrils near the middle of the bill. Wings rather short, pointed; the first quill the longest. Tail of sixteen feathers, moderately long, rounded. Legs short, placed far back; tarsi scutellated in front; hind toe small, slender, broadly lobed; webs full. Sexes differ in plumage (p. 451).

Harelda, *Stephens.*—Bill much shorter than the head, its outlines tapering rapidly to the tip, which has a broad, prominently decurved nail; lamellæ slightly exposed along the gape-line. Nostrils oblong, sub-basal. Feathering at the base of the bill forming an oblique line, advancing furthest forward on the forehead, and scarcely interrupted by the re-entrant angle so prominent in most Ducks. Wings rather short, pointed; scapulars much elongated and lanceolate in the adult male. Tail of fourteen feathers, short and graduated, except the two central feathers, which are very long and tapering in the adult male. Legs short, placed far back; hind toe small but broadly lobed. Sexes differ in plumage (p. 455).

Cosmonetta, *Kaup.*—Bill rather short, narrowing rapidly to the tip, which is occupied by a large decurved nail; a small lobe on each side at the base of the upper mandible; lamellæ concealed. Nostrils oblong, median. Wing short, pointed, the first and second quills nearly equal in length. Tail of fourteen rather pointed feathers, much graduated. Legs short and placed far back; hind toe slender, with a large lobe; anterior toes fully webbed. Sexes differ in plumage (p. 457).

Somateria, *Leach.*—Bill swollen and elevated at the base, which extends far up the forehead, where it is divided by an elongated, descending, angular projection of feathers down the surface. Nostrils lateral, oval, small. Wings moderate, with the first and second quills sub-equal. Tail short, of fourteen feathers. Legs short; three anterior toes broadly webbed; hind toe with a deeply lobated membrane. Sexes differ in plumage (p. 459).

ŒDEMIA, *Fleming.*— Bill swollen or tuberculated at the base, large, elevated, and strong; the tip much depressed, and terminated by a large flat nail, rounded and slightly deflexed at the extremity; lamellæ broad, strong, and widely set. Nostrils lateral, elevated, oval, placed near the middle of the bill. Wings rather short, pointed. Tail short, graduated, acute. Legs far back; tarsus short; three toes in front and one behind; the outer toe as long as the middle one and much longer than the tarsus; hind toe with a large lobed membrane. Sexes differ in plumage (p. 465).

MERGUS, *Linnæus.*—Bill about as long or longer than the head, straight, slender, rather pointed, the base large, forming an elongated and almost cylindrical cone; point of the upper mandible curved and, with the horny nail, forming a hook; edges of both mandibles furnished with saw-like teeth, the points directed backwards. Nostrils lateral, longitudinally elliptic. Wings moderate, the first and second quills nearly equal. Legs short, placed rather far back; three toes in front webbed, hind toe with a pendant lobe. Sexes differ in plumage (p. 471).

Order COLUMBÆ.

Family COLUMBIDÆ.

COLUMBA, *Linnæus.*— Bill moderate, straight at the base, compressed, the point deflexed. Base of the upper mandible covered with a soft skin, in which the nostrils are pierced. Wings long, broad, rather pointed; the second quill-feather longest. Tail of twelve feathers, nearly even. Tarsus short, anteriorly scutellated; three toes in front, entirely divided from one another, one toe behind (p. 479).

TURTUR, *Selby.*—Bill rather slender, the tip of the upper mandible gently deflexed, that of the lower scarcely exhibiting the appearance of an angle; base of the upper mandible covered with two soft, tumid, bare swellings over the nostrils. Tail of twelve feathers, rather long and considerably rounded or graduated. Wings rather long and pointed, the first quill a little shorter than the second, which is the longest. Tarsus rather shorter than the middle toe; inner toe longer than the outer (p. 485).

Order PTEROCLETES.

Family PTEROCLIDÆ.

SYRRHAPTES, *Illiger.*—Bill small, gradually decurved from the base to the point. Nostrils basal, hidden in the feathers. Wings very long, pointed, the first primary the longest. Tail of sixteen feathers, cuneate, the two central rectrices long and tapering. Tarsus very short and strong, covered with downy feathers to the three anterior toes, which are united by a membrane as far as the claws; hind toe obsolete; soles rugose; claws broad and obtuse (p. 488).

Order GALLINÆ.

Family TETRAONIDÆ.

Tetrao, *Linnæus.*—Bill short, strong ; upper mandible convex, and arched from the base to the tip. Nostrils basal, lateral, partly closed by an arched scale, and hidden from view by small closely-set feathers. Space above the eye naked, the skin covered with red papillæ, and fringed. Wings short and rounded ; the fifth quill the longest. Tail of eighteen feathers. Tarsi feathered to the junction of the toes, which are naked ; the three in front united as far as the first joint ; one toe behind, short ; the edges of all pectinated (p. 491).

Lagopus, *Brisson.*—Bill very short, clothed at the base with feathers ; the upper mandible convex, and bent down at the point. Nostrils basal, lateral, partly closed by an arched membrane, and nearly hidden by the small closely-set feathers at the base of the bill. Eyebrows naked, as in *Tetrao.* Wings short, concave, with the third and fourth quills the longest. Tail of sixteen feathers, generally square at the end. Tarsi and toes completely feathered ; hind toe very short and barely touching the ground with the tip of the nail ; claws long and nearly straight (p. 495).

Family PHASIANIDÆ.

Phasianus, *Brisson.*—Bill of moderate length, strong ; upper mandible convex, naked at the base, and with the tip bent downwards. Nostrils basal, lateral, covered with a cartilaginous scale ; cheeks and the skin surrounding the eyes destitute of feathers, and with a verrucose red covering in the male. Wings short ; the first quill narrow towards the tip, the fourth and fifth feathers the longest in the wing. Tail of eighteen feathers, long, wedge-shaped, graduated. Feet with three anterior toes united by a membrane as far as the first joint ; the hind toe articulated upon the tarsus, which is furnished with a horny, conical, and sharp spur, in the male (p. 499).

Perdix, *Brisson.*—Bill short, strong, naked at the base ; upper mandible convex, deflected towards the tip. Nostrils basal, lateral, the orifice partly concealed by an arched naked scale. Wings short, concave, rounded in form ; the first three quills shorter than the fourth or fifth, which are the longest in the wing. Tail with sixteen feathers in the same plane, short, rounded. Feet with three toes in front and one behind, those in front united by a membrane as far as the first joint (p. 501).

Caccabis, *Kaup.*—Bill short, stout, naked at the base ; upper mandible decurved to the tip. Nostrils basal, lateral, partly covered by an oblong horny scale. Wings short, rounded ; the first three feathers shorter than the fourth and fifth, which are the longest. Tail of fourteen feathers, short, rounded. Tarsus anteriorly scutellated, and—in the male—armed with blunt spurs ; three toes in front united at their bases by a membrane ; one toe behind (p. 503).

Coturnix, *Bonnaterre.*—Bill strong, shorter than the head, upper mandible curved. Nostrils basal, lateral, half closed by an arched membrane. Wings moderate, the first quill the longest. Tail short, rounded, almost hidden by the tail-coverts. Tarsus without a spur. Feet with four toes, those anterior connected by a membrane as far as the first joint (p. 505).

Order GRALLÆ.

Suborder FULICARIÆ.

Family RALLIDÆ.

CREX, *Bechstein.*—Bill shorter than the head, thick at the base, compressed; the culmen gradually deflexed from the forehead to the point of the bill; lateral furrow of the upper mandible broad, and occupying more than half its length; angle of the under mandible bending upwards; both mandibles of an equal length. Nostrils concave, lateral, linear, ovoid, pierced in a membrane occupying the furrow in the middle of the bill. Wings armed with a spine, and having the second and third quills the longest. Legs strong, of moderate length, with the lower part of the tibia naked; the three anterior toes long, slender, and without any lateral membrane as far as the base; the hind toe resting almost wholly on the ground; claws arcuate, compressed and sharp (p. 507).

PORZANA, *Vieillot.*—Bill shorter than the head, slightly higher than broad at the base, compressed, tapering towards the point. Nostrils linear and oblong, the nasal groove reaching to the middle of the bill. Wings shorter than in *Crex*; the second quill the longest. Tail short, rounded, the feathers narrow, weak, and slightly curved. Tibiæ bare on the lower part; tarsi short, scutellated in front; toes long and slender; claws long and acutely tapering (p. 509).

RALLUS, *Brisson.*—Bill longer than the head, slender, slightly decurved, compressed at the base, cylindrical at the point; upper mandible grooved at the sides. Nostrils pierced longitudinally in the lateral groove, partly covered by a membrane. Wings moderate, rounded; the first quill much shorter than the second, the third and fourth the longest. Legs long and robust, with a small naked space above the tarsal joint; the three anterior toes divided to their origin, the hind toe articulated upon the tarsus (p. 515).

GALLINULA, *Brisson.*—Bill thick at the base, compressed, slightly swollen towards the tip, subconic, as short as the head. Upper mandible convex, with the culmen extended and dilated, to form a naked, oblong frontal plate or shield; lateral furrow wide; mandibles nearly equal in length; angle of the lower one ascending. Nostrils lateral, pervious, pierced in the membrane of the furrow in the middle of the bill, longitudinal and linear. Wings short, concave, rounded, armed with a small, sharp, recumbent spine. Legs long, naked for a short space above the tarsal joint; tarsi scutellated in front, reticulated behind. Toes, three before and one behind, long, divided and bordered along their whole length by a narrow membrane (p. 517).

FULICA, *Brisson.*—Bill and frontal plate much as in *Gallinula*. Wings of moderate size; the first quill shorter than the second or third, which are the longest in the wing. Tail short. Legs rather long, naked above the tarsal joint; three toes in front, one behind; all the toes long, united at the base, and furnished laterally with lobed membranes (p. 519).

Suborder GRUES.

Family GRUIDÆ.

GRUS, *Bechstein.*—Bill longer than the head, straight, strong, compressed and pointed. Nostrils placed longitudinally in a furrow, large, pervious, closed posteriorly by a membrane. Wings moderate and rounded; the first quill

shorter than the second, the third the longest in the wing. Legs very long, robust, naked above the joint; three toes in front, middle toe united to the outer toe by a membrane, hind toe articulated high up on the tarsus (p. 521).

Suborder OTIDES.

Family OTIDIDÆ.

OTIS, *Linnæus.*—Bill moderate, straight, depressed at the base, the point of the upper mandible curved. Nostrils a little removed from the base, lateral, oval and open. Wings of moderate length, rather rounded in form; the third quill the longest. Legs long, naked above the tarsal joint. Toes three; all directed forward, short, united at the base, and edged with membranes (p. 523).

Order LIMICOLÆ.

Family ŒDICNEMIDÆ.

ŒDICNEMUS, *Temminck.*—Bill stout, strong, and straight, a little depressed at the base; ridge of the upper mandible elevated, under mandible with a sharp angle at the gonys. Nostrils in the middle of the beak, extending longitudinally as far forward as the horny portion, open in front, pervious. Wings moderate, the second quill longest. Tail much graduated. Legs long, slender; three developed toes, directed forwards, united by a membrane as far as the second joint (p. 529).

Family GLAREOLIDÆ.

GLAREOLA, *Brisson.*—Bill short, convex, compressed towards the point, the upper mandible curved throughout the distal half of its length. Nostrils basal, lateral, pierced obliquely. Wings very long, the first quill the longest. Tail forked. Legs bare for a short space above the tarsal joint, long and rather slender; three toes in front, one behind; the middle toe united by a short membrane to the outer toe; the inner toe free; the hind toe articulated upon the tarsus; claws long and subulate (p. 531).

CURSORIUS, *Latham.*—Bill rather shorter than the head, straight to the end of the nasal furrow, then decurved to the tip, which is pointed. Nostrils oval. Wings long, rather pointed; the first and second quills the longest in the wing. Tail rounded. Legs long and slender; three toes only, all in front, the middle toe almost as long again as the lateral toes (p. 533).

Family CHARADRIIDÆ.

EUDROMIAS, *C. L. Brehm.*—Bill rather slender, compressed, shorter than the head, nasal furrow extending about half the length of the upper mandible, which is horny and slightly decurved towards the tip. Nostrils sub-basal, lateral, linear. Tail rather long, slightly rounded. Wings of moderate length, pointed, the first quill the longest; inner secondaries very nearly as long as the primaries. Legs of moderate length, scutellated, rather slender, naked for a short distance above the tarsal joint. Toes three only, all directed forwards, the outer and middle toes connected at the base by a slight web; claws short, curved, slender (p. 535).

ÆGIALITIS, *Boie.*—Bill much shorter than the head, rather slender; straight to the end of the nasal furrow, which extends beyond the middle of the bill, then slightly raised, but bent downwards at the tip. Nostrils small and linear. Wings long, pointed, the first quill the longest; the inner secondaries reaching to the tip of the third primary. Tail broad, slightly rounded. Legs moderately long, slender, bare for a short distance above the tarsal joint; tarsus reticulated. Toes three only, slightly webbed at the base (p. 537).

CHARADRIUS, *Linnæus.*—Bill shorter than the head, straight, rather slender, the upper mandible straight to the end of the nasal furrow, then slightly raised, and decurved to the pointed tip. Nostrils sub-basal and linear. Wings long and pointed, the first quill the longest; inner secondaries much shorter than in *Eudromias* and somewhat shorter than in *Ægialitis*. Legs of moderate length, slender, bare for a short distance above the tarsal joint; tarsus reticulated. Toes three only, all directed forwards, slightly webbed at the base (p. 547).

SQUATAROLA, *Leach.*—Bill nearly as long as the head, rather strong, upper mandible straight to the end of the nasal groove, which is long and wide, then raised and decurved to the tip. Nostrils sub-basal, linear. Wings long, pointed, the first quill the longest. Legs moderate, slender; lower part of the tibia naked, tarsus reticulated. Toes four in number; three directed forward and slightly webbed at their base, the fourth behind, and minute, but distinct and elevated (p. 551).

VANELLUS, *Brisson.*—Bill shorter than the head, straight, slightly compressed; the points of both mandibles horny and hard. Nasal groove wide, and reaching as far as the horny tip. Nostrils basal, linear, pierced in the membrane of the nasal groove. Wings large, tuberculated or spurred in front of the carpal joint; the first and second quill-feathers shorter than the third and fourth, which are about equal, and the longest in the wing. Legs slender, with the lower part of the tibiæ naked; tarsi reticulated behind, scutellated in front; the three anterior toes united at the base by a membrane; hind toe short, articulated upon the tarsus (p. 553).

STREPSILAS, *Illiger.*—Bill as short as the head, strong, thick at the base, tapering gradually to the point, forming an elongated cone; the upper mandible the longer, rather blunt at the end. Nostrils basal, lateral, linear, pervious, partly covered by a membrane. Wings long, pointed, the first quill-feather the longest. Three toes in front, united by a membrane at the base and furnished with narrow rudimentary interdigital membranes; a hind toe articulated upon the tarsus and just reaching the ground (p. 557).

HÆMATOPUS, *Linnæus.*—Bill longer than the head, straight, strong, the point much compressed, forming a wedge; culmen of the anterior part slightly convex; upper mandible with a broad lateralg roove on each side for half the length of the bill; mandibles nearly equal in size and length, with the thin ends truncated. Nostrils basal, lateral, linear, pierced in the membrane of the mandibular groove. Legs of moderate length, naked for a short space above the tarsal joint; tarsi strong. Three toes only, all directed forward, united at their base by a membrane; claws broad (p. 559).

RECURVIROSTRA, *Linnæus.*—Bill very long, slender, weak, depressed for nearly its whole length, flexible, pointed, and curving upwards; the upper mandible

grooved along the upper surface, under mandible grooved along the sides. Nostrils near the base of the upper surface of the beak, linear, long. Wings pointed, the first quill the longest. Legs long and slender, a great portion of the tibia naked; three toes in front, united as far as the second joint by a membrane, the margin of which is incised; hind toe minute, articulated high up on the tarsus (p. 561).

HIMANTOPUS, *Brisson.*—Bill long, slender, slightly recurved at the tip, cylindrical, flattened at the base, compressed at the point, both mandibles grooved on the sides along the basal half of their length. Nostrils lateral, linear, elongated. Wings very long, the first quill considerably the longest. Legs very long and slender; three toes only, all in front, the middle united to the outer toe by a membrane of considerable size and to the interior toe by a smaller membrane; claws small and flat (p. 563).

PHALAROPUS, *Brisson.*—Bill rather long, weak, straight, depressed, and blunt; both mandibles grooved throughout their whole length; the upper mandible slightly curved at the point. Nostrils basal, lateral, oval, with an elevated margin. Wings long and pointed, the first quill the longest. Legs rather short, slender; tarsus compressed; three toes in front, furnished with extensions of the membrane laterally, forming lobes slightly serrated at the edges; a small hind toe articulated on the inner side of the tarsus (p. 565).

SCOLOPAX, *Brisson.*—Bill long, straight, compressed, slender, soft, slightly curved at the point; both mandibles grooved along the basal half of their length; point of the upper mandible extending beyond that of the lower mandible, the curved part forming a slight crook; superior ridge elevated at the base, prominent. Nostrils lateral, basal, pierced longitudinally near the edges of the mandible, covered by a membrane. Wings moderate, the first quill the longest. Tail short, rounded. Legs rather short, the tibia feathered nearly to the tarsal joint; three toes before and one behind, the anterior toes almost entirely divided (p. 569).

GALLINAGO, *Leach.*—Bill very long, straight, slender, flexible, slightly elevated towards the tip of the upper mandible, which is decurved at the point and projects beyond the lower; both mandibles grooved along the basal half of their length. Nostrils lateral, linear, basal, covered by a membrane. Tail slightly rounded. Wings moderate, pointed, the first quill the longest; inner secondaries very long. Legs rather long and slender; naked space on the tibia short; tarsus scutellated; three toes before, long, slender, divided to the base; hind toe slender, elevated; claws slender, acute (p. 571).

LIMICOLA, *K. L. Koch.*—Bill much longer than the head, nearly as broad as high at the base, very flat and wide up to the tip, where it is gradually rounded obtusely, with the terminal portion slightly decurved; nostrils oval, oblique, placed in a depressed membrane. Wings long, pointed, the first quill the longest; inner secondaries long and pointed. Tail moderate, doubly emarginated. Legs rather short, slender, bare on the lower part of the tibia; tarsus scutellated; the three anterior toes long and slender, slightly webbed at the base; the hind toe moderate (p. 577).

TRINGA, *Brisson.*—Bill rather longer than the head, sometimes decurved, rather flexible, compressed at the base, depressed, dilated, and blunt towards the point, both mandibles grooved along the sides. Nostrils lateral, placed in the membrane of the groove. Wings moderately long, pointed, the first

quill the longest. Legs moderately long, slender, lower part of tibia naked; three toes in front, divided to their origin; one toe behind, small, and articulated upon the tarsus (p. 579).

CALIDRIS, *Illiger*.—Bill as long as the head, straight, slender, flexible, compressed at the base, with the point dilated and smooth. Nostrils basal, lateral, narrow, longitudinally cleft in the nasal furrow, which extends to the smooth point of the beak. Wings of moderate length, pointed, the first quill the longest. Tail of twelve feathers, short, doubly emarginated. Legs rather short, naked for some distance above the tarsal joint. Three toes only; all directed forwards, with a very small connecting membrane at their base (p. 597).

MACHETES, *Cuvier*.—Bill straight, rather slender, as long as the head, with the tip dilated and smooth; upper mandible laterally sulcated for four-fifths of its length; culmen rounded. Nostrils basal, lateral, linear, placed in the commencement of the groove. Wings long and pointed, the first quill the longest. Legs moderate, the tibia naked for a considerable space above the tarsal joint. Toes, three before and one behind; the outer toe united to the middle one by a small web; hind toe short, barely touching the ground. During the breeding-season the head and neck of the male are adorned with long plumes, which, when raised, form a large ruff around the head, and the face is covered with small fleshy warts or papillæ (p. 599).

TRINGITES, *Cabanis*.—Bill shorter than the head, slender, straight, decurved, acute and hardened at the tip; nasal groove long; nostrils basal, linear, rather large. Gape extensive. Wings pointed, the first quill the longest. Tail rounded, with projecting central feathers. Legs moderate, slender, the tibia bare for a considerable distance; tarsus compressed, slender, scutellated, anterior toes free nearly to their bases; hind toe small, elevated; claws small, arched, slender, slightly acute (p. 601).

BARTRAMIA, *Lesson*.—Bill scarcely longer than the head, moderately slender, straight, the nasal groove extending nearly to the tip, which is narrowed but obtuse; nostrils linear, basal. Gape very wide and deep. Wings not reaching to the end of the tail, pointed; the first quill the longest, the inner secondaries rather elongated. Tail of twelve feathers, long, much rounded. Legs rather long and slender, the tibia bare for a considerable distance; tarsus scutellated; toes, three in front, long and slender, a slight web between the outer and the middle; hind toe elevated (p. 603).

TOTANUS, *Bechstein*.—Bill longer than the head, straight or very slightly recurved, soft at the base, hard, solid at the point, compressed throughout the whole length, ending in a sharp point; both mandibles grooved at the base, the extreme end of the upper mandible slightly bent towards the under one. Nostrils lateral, linear, pierced longitudinally in a groove. Wings moderate; the first quill the longest; inner secondaries elongated. Tail rather short; somewhat rounded. Legs moderate or long, slender, naked above the tarsal joint; three toes in front, one behind; the middle toe united to the outer toe by a membrane (p. 605).

MACRORHAMPHUS, *Leach*.—Bill long, straight, rounded, rather slender in the middle, the tip dilated, slightly incurved and rugose. Nostrils lateral, basal. Wings long and pointed. Tail of twelve feathers. Lower part of the tibia

naked; toes four in number, the third and fourth connected at their base by a membrane; the hind toe touching the ground at the tip (p. 621).

LIMOSA, *Brisson.*—Bill very long, rather thick at the base, compressed, slightly curved upwards; both mandibles grooved laterally to within a short distance of the point, which is somewhat dilated and blunt; tip of the upper mandible projecting beyond the lower one. Nostrils basal, placed in the lateral groove, narrow and longitudinal. Wings pointed, of moderate length, the first quill the longest. Tail short and even. Legs long and slender, a great part of the tibia naked. Three toes in front, one behind; outer and middle toes united at the base by a membrane, the inner toe nearly free; middle claw dilated, recurved, and pectinated; hind toe short, and articulated fairly high upon the tarsus (p. 623).

NUMENIUS, *Brisson.*—Bill long, slender, and decurved to the point, which is hard; upper mandible rather longer than the lower, rounded near the end and grooved along three-fourths of its whole length. Nostrils lateral, linear, pierced in the groove. Wings moderate, the first quill the longest. Legs rather long, slender; tibia partly naked; three toes in front, united by a membrane as far as the first joint; one toe behind, articulated low upon the tarsus and touching the ground (p. 627).

Order GAVIÆ.

Family LARIDÆ.

Bill without a cere; sternum with two notches on each side of the posterior margin; toes partially or fully webbed; claws feeble or moderate.

Subfamily STERNINÆ.

HYDROCHELIDON, *Boie.*—Bill about as long as the head, nearly straight, tapering. Wings long and pointed, the first quill the longest. Tail short, very slightly forked. Legs short; the tibia bare for some distance; the tarsus compressed, anteriorly scutellated; three toes in front connected by deeply scalloped webs; hind toe small and elevated; claws long, slender, curved (p. 633).

STERNA, *Brisson.*—Bill longer than the head, nearly straight, compressed. Wings long, pointed, the first quill-feather the longest. Tail distinctly forked in varying degrees. Legs slender, naked for a short space above the tarsal joint; the three toes in front united by membranes which are concave in front or semi-palmated; hind toe free; claws curved (p. 639).

ANOUS, *Stephens.*—Tail moderately long, rounded, slightly emarginated. Three anterior toes united by a very full web, hind toe small; claws strong and curved. Otherwise much as in *Sterna* (p. 655).

Subfamily LARINÆ.

XEMA, *Leach.*—Bill rather shorter than the head, moderately stout; the upper mandible decurved from beyond the nostrils to the tip, the gonys angular and advancing upwards. Nostrils basal, lateral, linear. Wings long, the first quill the longest. Tail distinctly forked. Legs moderately long; the

lower part of the tibia bare for some distance ; tarsi tolerably strong ; three toes in front entirely webbed, hind toe small, elevated (p. 657).

RHODOSTETHIA, *Macgillivray.*—Bill very short, rather slender ; the upper mandible decurved towards the tip, the lower mandible narrow. Wings long and pointed, the first quill the longest. Tail cuneate, the central feathers much longer than the lateral. Legs rather short, the tibia bare for a short distance ; tarsus anteriorly scutellated, rough posteriorly ; hind toe very distinct, with a large curved claw ; the three anterior toes entirely webbed ; claws rather large, and curved (p. 659).

LARUS, *Linnæus.*—Bill of moderate length, strong, hard, compressed, cutting, slightly decurved towards the point, lower mandible shorter than the upper, the symphysis angular and prominent. Nostrils lateral, near the middle of the beak, pierced longitudinally, pervious. Wings long, the first and second quills varying slightly in their relative length, but nearly equal. Tail square at the end. Legs moderately slender, lower part of the tibiæ naked, tarsus rather long ; three toes in front entirely palmated, the hind toe free, short, but not rudimentary, articulated high upon the tarsus above the line of the other toes (p. 661).

RISSA, *Stephens.*—Bill rather short and stout, the upper mandible considerably decurved to the tip, the lower mandible compressed. Nostrils median, linear, oblong. Wings long, pointed, the first primary slightly exceeding the second. Tail slightly but perceptibly forked in the young, nearly square in the adult; tarsus very short in proportion to the foot ; hind toe minute and usually obsolete ; claws rather small, slightly curved (p. 683).

PAGOPHILA, *Kaup.*—Bill shorter than the head, robust, compressed, straight, the upper mandible decurved towards the tip, lower mandible narrower. Nostrils basal, linear, oblong, wider in front, covered above and behind with a sloping thin-edged plate. Wings long, pointed, the first quill longest. Tail rather long, slightly graduated. Legs short, bare for a short distance above the tibia ; tarsi broadly scutellated in front, and minutely at the sides and back ; interdigital membranes emarginated and serrated ; claws strong and curved ; hind toe furnished with a large claw, and connected on the inside with the tarsus by a well-defined web (p. 685).

Family STERCORARIIDÆ.

Bill with a cere ; tip of the upper mandible hooked ; sternum with only one notch on each side of the posterior margin ; cæca much larger than in *Laridæ* ; toes fully webbed, furnished with large, strong, hooked and sharp claws.

MEGALESTRIS, *Bonaparte.*—Size larger, form robust ; length of the bill at the exposed base nearly equal to the length of the cere ; tail short, the central pair of feathers projecting about half an inch (p. 687).

STERCORARIUS, *Brisson.*—Size smaller, form more slender ; depth of the bill at the exposed base decidedly less than the length of the cere ; the central pair of tail-feathers projecting three inches or more in adults (p. 689).

Order ALCÆ.

Family ALCIDÆ.

Subfamily ALCINÆ.

ALCA, *Linnæus.*—Bill straight, large, compressed, very much decurved towards the point, basal half of both mandibles covered with feathers, grooved towards the point, the superior mandible hooked, the under one forming with it a salient angle. Nostrils lateral, marginal, linear, near the middle of the beak, the aperture almost entirely closed by a membrane covered with feathers. Wings short. Tail pointed. Legs short, very far back; only three toes, all in front and entirely webbed; claws slightly curved (p. 695).

URIA, *Brisson.*—Bill of moderate length, strong, straight, pointed, compressed; upper mandible slightly curved near the point, with a small indentation or notch in the edge on each side. Nostrils basal, lateral, concave, pierced longitudinally, partly closed by membrane, which is also partly covered with feathers. Wings short, first quill the longest. Tail shorter than in *Alca*. Legs short, slender, placed behind the centre of gravity in the body; only three toes, all in front and entirely webbed (p. 699).

MERGULUS, *Vieillot.*—Bill shorter than the head, thick, broader than high at the base; culmen arched; upper mandible indistinctly grooved, under mandible with the symphysis very short and oblique; the tips of both notched; commissure arched. Nostrils lateral, round, situated at the base of the bill, and partly covered with small feathers. Wings and tail short. Legs far back, short; three toes, all directed forward and united by a membrane (p. 705).

Subfamily FRATERCULINÆ.

FRATERCULA, *Brisson.*—Bill higher than long, much compressed; both mandibles arched, transversely grooved, notched towards the point. Nostrils lateral, naked, almost closed by a membrane. Wings and tail short. Legs far back; feet with three toes, all in front and fully webbed; claws curved (p. 707).

Order PYGOPODES.

Family COLYMBIDÆ.

COLYMBUS, *Linnæus.*—Bill about as long as the head; strong, straight, rather compressed, pointed. Nostrils basal, lateral, linear, perforated. Wings short, the first quill the longest. Tail short and rounded. Legs thin, compressed, placed very far backwards, and closely attached to the posterior part of the body; three toes in front united by membranes, one toe behind with a small membrane, articulated upon the tarsus; claws flat (p. 709).

Family PODICIPEDIDÆ.

PODICIPES, *Latham.*—Bill of moderate length, straight, hard, slightly compressed, pointed, forming an elongated cone. Nostrils lateral, concave, oblong, open in front and perforated, closed behind by a membrane. No true tail. Wings short, first three primaries nearly equal and the longest in the

wing. Legs and feet long, attached behind the centre of gravity; tarsi very much compressed; three toes in front, one behind; anterior toes very much flattened, united at the base, surrounded by a lobated membrane; hind toe also flattened, articulated on the inner surface of the tarsus; claws large, flat (p. 717).

Order TUBINARES.

Family PROCELLARIIDÆ.

Nostrils united externally above the culmen; margin of the sternum even; manubrium of furcula long; coracoids long, comparatively narrow across the base and slightly divergent; second primary the longest (Salvin).

PROCELLARIA, *Linnæus.*—Bill small, robust, much shorter than the head, straight to the nail, which is decurved; nostrils dorsal. Wings long, narrow; the second quill-feather slightly exceeding the third; the first quill shorter than the fourth. Tail of moderate length, slightly rounded. Legs moderate, the tarsi anteriorly reticulate, and a little longer than the feet; webs emarginated; claws rather short (p. 727).

OCEANODROMA, *Reichenbach.*—Bill shorter than the head, moderately stout, compressed, rising slightly at the nail, then decurved; nostrils dorsal. Wings long and narrow; the first quill-feather shorter than the second and also than the third, and about equal to the fourth. Tail long and deeply forked. Legs short, slender; tarsi anteriorly reticulated; hind toe minute, front toes long and slender with webs slightly emarginated (p. 729).

OCEANITES, *Keyserling & Blasius.*—Bill small and weak, the nail gradually decurved; nasal tubes perfectly horizontal. Wings exceedingly long, the second quill much the longest, the first quill being shorter than the fourth, and slightly exceeding the fifth. Tail almost square. Legs long and slender, bare for a considerable distance above the tarsal joint; feet nearly as long as the tarsi, membranes emarginated, hind toe absent; claws sharp, spatulated, not much flattened (p. 733).

PELAGODROMA, *Reichenbach.*—Much as in *Oceanites*, but claws flattened and wide; first primary decidedly shorter than the third (p. 735).

Family PUFFINIDÆ.

Nostrils united externally, or nearly so, above the culmen; margin of the sternum uneven; distinct pterygoid processes; manubrium of furcula very short; coracoids short, wide at the base and divergent; first primary the longest, or not shorter than the second (Salvin).

PUFFINUS, *Brisson.*—Bill rather longer than the head, slender; mandibles compressed and decurved. Nostrils tubular, with two separate orifices. Wings long and pointed, the first quill slightly the longest. Tail graduated. Tarsi compressed laterally; three toes in front, rather long, webbed throughout; hind toe rudimentary (p. 737).

ŒSTRELATA, *Bonaparte.*—Bill rather shorter than the head, stout, compressed, straight for some distance, then ascending at the commencement of the unguis,

which is sharply decurved, with an acute tip ; nasal tubes moderately long, elevated, conspicuous, the dorsal outline straight, the orifice subcircular. Wings long and pointed, extending beyond the tail when folded ; the first quill a trifle longer than the second. Tail moderately long and graduated. Tarsi reticulated ; feet and front toes of moderate size ; hind toe small and elevated (p. 745).

Bulweria, *Bonaparte.*—Bill about as long as the head, stout at the base, compressed, rising at the nail, which is large ; nostrils tubular, dorsal, rather short. Wings long, pointed, the first quill slightly the longest. Tail long and cuneate. Legs slender ; the tibiæ bare for a short distance above the joint, the tarsi reticulated ; hind toe minute, elevated ; feet fully webbed, the inner toe shorter than the middle and outer toes, which are about equal ; claws curved (p. 749).

Fulmarus, *Stephens.*—Bill not so long as the head ; the upper mandible composed of four portions, divided by lines or indentations, the whole together large and strong, curving suddenly towards the point ; the under mandible grooved along each side, bent at the end, with a prominent angle beneath ; the edges of both mandibles sharp ; those of the lower mandible shutting just within those above. Nostrils prominent along the upper ridge of the upper mandible, but united, enclosed, and somewhat hidden within a tube with a single external orifice, within which the division between the two nasal openings is visible. Wings rather long, the first quill the longest in the wing. Tarsi compressed ; feet moderate, three toes in front united by membranes, hind toe rudimentary with a conical claw (p. 751).

Family DIOMEDEIDÆ.

Nostrils lateral, separated by the wide culmen, each in a separate horny sheath opening forwards ; margin of the sternum uneven, the sternum itself short compared with its width ; no pterygoid processes ; manubrium of furcula short, very wide at the base and widely divergent ; first primary the longest (Salvin).

Diomedea, *Linnæus.*— Sides of the mandible without longitudinal sulcus ; base of the culminicorn wide, joining the proximal end of the dorsal edge of the latericorn ; tail short, rounded (p. 753).

Remarks.—In this Edition, the length of a bird is measured from the point of the bill to the end of the tail ; and in all cases *average* measurements are to be understood.

The upper mandible is often called the maxilla, and the tarsus is strictly the tarso-metatarsus ; but I have adhered to old-fashioned terms.

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THE MISTLE-THRUSH.

TURDUS VISCÍVORUS, Linnæus.

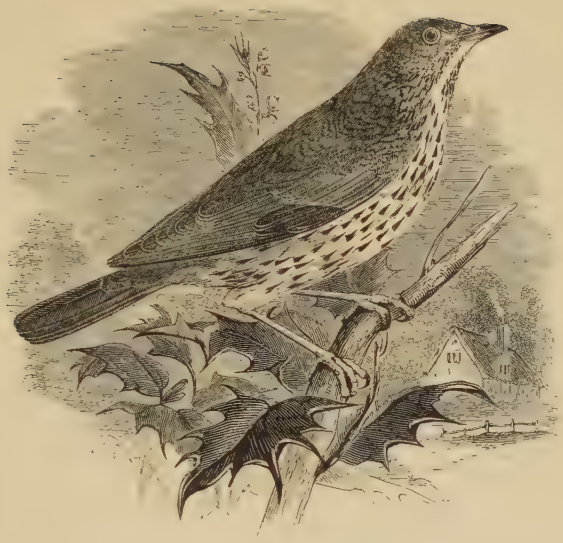
Owing perhaps to the increase of plantations during the present century, the Mistle-Thrush, the largest resident species of the genus, has extended its breeding-range northward to Caithness, Sutherland and West Ross, as well as to some of the Hebrides; but to the Orkneys it is chiefly a wanderer, very rarely breeding, and has seldom been recorded from the Shetlands. Until about the year 1800 it was unknown in Ireland, where it is now sedentary and increasing; while in England and Wales it is of general distribution, though commoner in the wooded districts. Emigration takes place from the colder portions of our islands in autumn and winter, when, on the other hand, large flocks arrive from the Continent.

This species breeds from Bodö in Norway southward, throughout suitable portions of temperate Europe to the extremity of the

Spanish Peninsula, and even in Northern Africa; eastward, in Turkey, the Caucasus, and the mountain forests of Asia down to the north-western Himalayas, and up to 9,000 feet; attaining in the last its palest colour and largest dimensions. In temperate Siberia it is found eastward to Lake Baikal; migrating in winter to Northern India, Persia, and Africa north of the Sahara.

In the south of England the Mistle-Thrush sometimes begins to lay in February, while even in the north it often has eggs in March. The nest, which when placed in a wide fork of a tree has a considerable foundation of mud, is lined with dry grasses and composed externally of bents and lichens, but although the colour of the latter may resemble that of the branch on which the structure is placed—bushes being seldom resorted to—there is often no attempt at concealment. Exceptionally the nest has been found on the ground or in a hole of a wall. The 4–5 eggs are greenish- to tawny-white, blotched with reddish-brown and lilac: measurements 1·25 in. by ·85 in. In the south two broods are generally produced annually, but in the north the fine weather is too short for more than one. From its habit of singing early in the year in defiance of rough weather, the Mistle-Thrush is often called the 'Storm-cock'; also 'Holm-screech,' from its partiality to the berries of the Holm or Holly, and its harsh *churr*-ing note. Its trivial name is a contraction of Mistletoe-Thrush, owing to the fact that it eats the berries of that parasite; but in Great Britain it seems to prefer those of the yew, holly, mountain-ash, hawthorn, ivy, &c., fruit when obtainable, worms, snails and insects. Although shy of man, except when its nest is approached, the Mistle-Thrush is a bold bird, fearlessly attacking Magpies, Jays, and other species superior to it in size. Its flight is rapid but jerky, and on the wing its large size, *greyish* tint, and white tips to the outer tail-feathers serve to distinguish it from any other Thrushes.

The adult male has the upper parts ash-brown; under parts buffish-white, with bold fan-shaped spots, smaller and more acute on the throat; under wing and axillaries white; bill horn-brown, yellowish at the base; legs pale brown. Total length 11 in.; wing 6 in. The female is slightly paler than the male. In the young the arrow-shaped markings on the throat and breast are more pronounced; the upper wing-coverts broadly tipped with white, and the under parts, especially the flanks, suffused with golden-buff. In this plumage it has been mistaken for the rare White's Thrush, but its *twelve* tail-feathers distinguish it: White's Thrush having fourteen.



THE SONG-THRUSH.

TURDUS MÚSICUS, Linnæus.

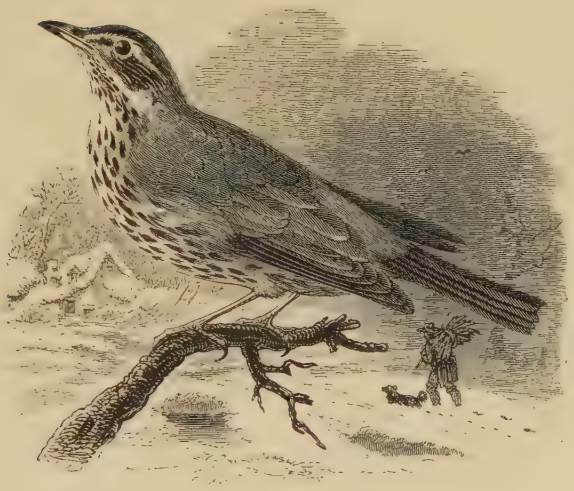
The Song-Thrush—known in the North as the Throstle or the Mavis—is generally distributed throughout the British Islands, being equally at home in summer in the cultivated regions of the south, or amongst the storm-swept, surf-lashed rocks of the Outer Hebrides (where the birds are small and dark, like the Hebridean *Lepidoptera*). In the Shetlands, however, it is of rare occurrence, and has seldom been known to nest. Especially in the north, a migratory movement takes place among our native birds in autumn, when considerable numbers visit us from the Continent.

Northward the Song-Thrush has wandered to the desolate island of Jan Mayen (between Iceland and Spitsbergen, about 70° N. lat.). From Norway it breeds (chiefly in the forest region) across Europe and Asia to Lake Baikal; sparingly and at increasing elevations in the south of Europe, down to the Pyrenean chain, the north of Italy, and the Caucasus; while in winter it visits Madeira, the Canaries, Northern Africa, Nubia, Asia Minor, and Persia.

The Song-Thrush is an early breeder, and young birds may sometimes be found by the end of March. The well-known nest, with its smooth water-tight lining of rotten wood and dung, is generally

placed in the middle of a thick bush or among ivy, and not unfrequently in a moss-covered bank; occasionally, but rarely, on level ground. The 4–6 eggs are of a shining greenish-blue, blotched with black or rusty-brown; spotless varieties being not uncommon: measurements 1 in. by ·78 in. The female sits very closely, and is assisted to some extent by the male in the task of incubation, which lasts about a fortnight; two and sometimes three broods being produced in the season, and the young, presumably of the first, aiding in rearing the second. I have known a pair of Thrushes take possession of a Blackbird's nest, and hold it in despite of the owners. The much-admired song, characterized by a distinct repetition of its three or four component notes, may be heard on a warm bright day very early in the year, continues until the moulting season, and is often resumed in autumn; it is frequently uttered on fine nights. The Song-Thrush also readily adopts the notes of other birds. For nine months of the year it feeds on wild berries, insects, worms, and snails, the shells of the latter being broken against some convenient stone; but when fruit is ripe, the bird varies its diet, and in the vine-countries it feeds largely on grapes; while on the sea-coast whelks and other "shell-fish" are eaten, and this may have something to do with the dark colour of the Hebridean birds. Migration takes place at night, when flocks of this species drop suddenly and almost perpendicularly into wooded places, where numbers are frequently snared for the table, especially in Belgium, and also on Heligoland. It may be mentioned that although the Song-Thrush is called "Mavis" in Scotland, yet the French *Mauvis* is the Redwing. Mr. J. H. Gurney informs me that Mr. Bilham of Cromer, kept a Song-Thrush alive about fifteen years.

The adult male has the upper parts olive-brown, the wing-coverts with buff tips which form two bars; under parts whitish, and tawny on the breast and sides, which, with the ear-coverts and cheeks, are streaked and spotted with dark brown; axillaries and under wing golden-buff; bill horn-brown, yellowish at lower base; legs pale brown. Length 9 in.; wing 4·6 in. The female is rather smaller and paler on the under parts. The young before the first moult are mottled above with buff; afterwards like the parents, but more golden-tinted. Varieties with more or less white in their plumage are not uncommon.



THE REDWING.

TURDUS ILÍACUS, Linnæus.

The Redwing resembles a small Song-Thrush, but it may easily be distinguished by the broad whitish streak over the eye, and by the rich orange-red of the flanks and under-feathers of the wing: whence the bird's trivial name. The Redwing has been obtained in the British Islands on striking against lighthouses, from the beginning of August onwards, but large flocks seldom arrive before the middle of October. Although the most delicate of the European Thrushes, the Redwing can resist a considerable amount of frost, but should this be followed by a heavy fall of snow, such a combination of hardships proves very destructive. In winter, therefore, though the species is generally distributed, and even abundant in the Midlands, large numbers go past our shores, while comparatively few return by the same route on the spring migration. Not many remain in the south after the early part of April, but in the Shetlands they pass up to May, and though individuals are said to have lingered occasionally through the summer, there is no proof that the Redwing has ever bred in any part of our islands.

The nest of the Redwing has been found by Herr Müller in the Færoes, which are on the line of migration to and from Iceland. This is the only Thrush that breeds on that island, and it is generally distributed there during the short summer; while wanderers

have been obtained in Jan Mayen and Greenland. The bird nests freely in Norway, Sweden, and the northern part of Russia; sparingly in East Russia, and perhaps in Poland, Austrian Galizia, and even Anhalt, near the Hartz Mountains; while eastward the breeding-range extends across Siberia to the Yenesei. In winter the Redwing reaches Madeira, the Canaries, North Africa, and Asia as far south as North-western India and eastward to Lake Baikal.

Owing to the Gulf stream the climate is comparatively warm in Norway, and there the Redwing sometimes breeds early in May, but elsewhere later. In the forest-region the nest is placed on bushes or low trees, and a colony of Fieldfares will frequently have a nest or two of Redwings on the outskirts; but in the barren districts, sloping banks, hollows between stones, and low fences are selected. The structure is composed of twigs and earth, lined with dried grasses, and is frequently ornamented externally with lichens, especially reindeer-moss. The eggs, generally 6, are of a peculiar and evanescent green, closely streaked with reddish-brown, resembling small varieties of the eggs of the Blackbird, but without the bold markings of those of the Fieldfare: measurements ·98 in. by ·75 in. Two broods are frequently reared in the season. The parents show great anxiety when the nest with young is approached, snapping their bills angrily as they flutter round the head of the intruder. The song, which has been unduly eulogized, consists of several clear flute-like notes which may be syllabled as *trui*, *trui*, *trui*, *tritritri*; the call is *see-iou*. The food consists of insects, small snails, and berries, but the Redwing seems to be less partial to the last than are its congeners. Its flight is remarkably rapid.

The adult male has the upper parts olive-brown; wing-feathers rather darker, with paler edges; a broad whitish streak over the eye; under parts dull white, closely streaked with dark brown on the throat, breast, and part of the flanks, the inner portion of the last being of a rich chestnut-red; under wing and axillaries somewhat paler; bill dark brown above, lighter at the lower base; legs pale brown. Length 8·75; wing 4·4 in. The female has the plumage slightly duller than the male. The young bird is spotted on both upper and under parts, and, after the first autumn moult, it has well-defined pale tips to the wing coverts.

THE FIELDFARE.

TURDUS PILÁRIS, Linnæus.

The Fieldfare is one of the regular visitors to our islands, the date of its arrival depending upon the autumnal temperature in those northern regions of Europe which form its principal breeding-ground. Its appearance in Scotland and in eastern England has been recorded from the middle of September onwards, but on the west side, in Wales and in Ireland, it is usually about the middle of October. Every one must be familiar with the large flocks of Felts, "Blue Felts," or "Felfers," which during the winter are generally distributed throughout the United Kingdom, seeking their food over the fields and pasture-lands during open weather, and resorting to the berry-producing hedges when frost hardens or snow covers the ground. In backward springs the Fieldfare remains until the middle of May, and, exceptionally, till the beginning of June; but there is no proof that it has ever nested in this country.

An irregular visitor to the Færoes, this species has wandered to Iceland, and once to the island of Jan Mayen. It breeds abundantly in Scandinavia, Finland, Northern Russia, and Siberia as far as the Yenesei, beyond which it becomes rarer; in smaller numbers in Central Russia, the Baltic provinces, East Prussia, and Poland; and of late in Moravia, Bohemia, and Bavaria; while increasing colonies have established themselves in Central Germany, especially

near Halle on the Saale. Its line of migration is more easterly than that of the Redwing, the Fieldfare being rare in Spain and in the Canaries, but it winters in North Africa, and in Western Asia to Northern India.

In Northern Europe Fieldfares often breed in colonies—and in such assemblages the late Mr. A. C. Chapman and others have found old nests with eggs of the Merlin. Especially in birch, but also in fir woods, gardens and orchards the nest is in a fork between the trunk and a large branch; further north, where the birds become less gregarious, heaps of firewood, fences, shepherds' huts, &c., are utilized; while on the treeless *tundras* of Siberia the nest is placed on the ground, on the edge of a rock or a bank. In Poland breeding commences in April, but northward hardly before the middle of May. The 4–6, and even 7, eggs resemble very handsome Blackbird's, but they vary greatly, some being boldly blotched with reddish-brown like Ring-Ouzel's, while others have a light blue ground colour: dimensions 1·2 by ·85 in. Two broods are generally produced in the season. The old birds are very noisy when the breeding-place is approached, uttering their harsh cries of *tsak, tsak*; the call-note or love song, uttered by the male when on the wing, is a softer warbling *qui, qui*. The food of the young consists principally of insects until the wild strawberries and other fruits are ripe, and owing to its fondness for the juniper, this species is known in Germany as the 'Wachholder-drossel'; in fact it is a great eater of berries. It generally roosts in trees, and sometimes in reed-beds, or on the ground in stubble-fields.

The young Fieldfare on leaving the nest is spotted on the back like the young of other Thrushes, moulting again, as do the parents, before migration. The birds arrive in this country with light margins to the feathers of the lower parts, but by the following spring these edges have disappeared and the spots become more clearly defined, leaving the bird in its nuptial dress. The head is then slate-grey, streaked with black; mantle chestnut-brown; rump conspicuously grey; wings and tail dark brown; throat and breast golden brown streaked with black, the flanks boldly marked with very dark brown; centre of the belly white; under wing and axillaries pure white; the bill (which was darker in winter) is now yellow; the legs and toes are dark brown. The female is somewhat duller in colour than the male. Length 10 in.; wing 5·5 in. Like many of its congeners, this Thrush exhibits a few slender hair-like filaments on the nape, and to the accident of these being noticed in this species the name *pilaris* is probably due.

THE BLACK-THROATED THRUSH.

TURDUS ATRIGULÁRIS, Temminck.

The first recorded occurrence of this eastern species in Britain was a young male, obtained in the flesh by Mr. T. J. Monk of Lewes, shot near that town on December 23rd, 1868. Subsequently, in 'The Ibis' for October 1889, the late Lt.-Col. H. M. Drummond-Hay stated that he had identified an example of this species, shot by Mr. Robert Gloag after a prolonged snowstorm, on the banks of the Tay, in February 1879, when it was in company with another bird of the same kind; it has been presented to the Museum at Perth.

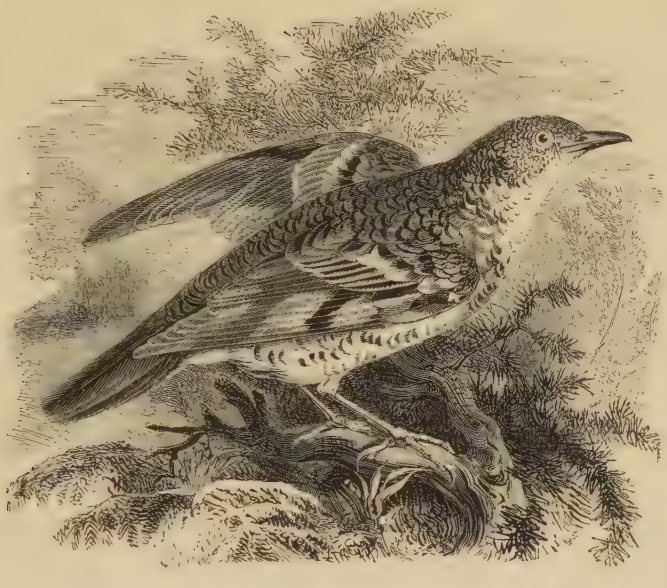
It is not improbable that other stragglers to this country may have been overlooked, for the species has several times occurred at no great distance from our shores. In December 1886 an example was obtained in Norway; one has been taken in Denmark, several in Northern Germany, Belgium, and France, and at least three in Tyrol and Northern Italy. In Central and Eastern Europe its occurrences, as might naturally be expected, become more frequent in proportion as its Siberian home is approached; nevertheless it has only once been obtained in the Caucasian district, near Lenkoran. Beyond the Ural Mountains the species becomes more abundant, breeding in Eastern Turkestan up to an elevation of

4,000 feet, and probably in the valley of the Ob; and although too late for eggs, the late Mr. Seebohm obtained three young not fully-fledged in the valley of the Yenesei between 60° and 63° N. lat., early in August. Herr Tancré's collectors have obtained a series of eggs in the Altai Mountains which "exhibit the same variation in colour as the eggs of the Blackbird, and measure from 1·2 to 1·15 in. in length, and from ·8 to ·75 in. in breadth" (Seebohm). This Thrush winters in Northern Persia, Afghanistan, Turkestan, Baluchistan, and India, as far south as Assam; its range extending eastward to Lake Baikal. There it meets with the Red-throated Thrush, *T. ruficollis*, a species which has wandered to Heligoland and Saxony.

The food of this species is stated by Dr. Scully to consist in winter chiefly of the berries of *Eleagnus*, a diet varied with insects and worms. Favourite haunts in the cold season are sand-hills, low scrub, and trees bordering watercourses; while Seebohm found that in summer a marked preference was shown for pine-trees, and the neighbourhood of the banks of the river where the forest had been cut down for fuel. The song of this species is undescribed.

The adult male in breeding-plumage has the throat and breast black; belly white, turning to greyish-brown on the sides and flanks; upper parts olive-brown, darker on the wings and tail. In winter the throat-feathers have light margins, and the general plumage is duller. The young male resembles the adult female, in which the feathers of the throat and breast are not completely black, but have merely dark centres, forming a streaked gorget; under parts dull creamy-white. In both sexes the under-wing and axillaries are golden buff. Bill dark brown above, pale below; legs and feet pale brown. Length about 9·75 in., wing 5·45 in.

Turdus migratorius, commonly called in North America 'the Robin,' owing to its ruddy breast, has been obtained at Dover; but, like the Wydah-bird and other exotic species obtained in that locality, it had probably escaped from some ship passing through the narrow seas. An example taken near Dublin in May 1891, and another from Leitrim, Dec. 1894, are both in the Dublin Museum, while one was obtained alive near Leicester in Oct. 1893. The species has occurred once at Heligoland, on the high road of vessels for Bremen and Hamburg; and it is not unfrequently brought to Europe as a cage-bird.



WHITE'S THRUSH.

TURDUS VÁRIUS, Pallas.

This boldly-marked species, rather larger than the Mistle-Thrush, belongs to a group known as the 'Ground' Thrushes (*Geocichla*), characterized by a partiality for woodland glades, where insects, which constitute their principal food, are obtained among the dead leaves. Owing to this habit, the large size, mottled plumage, and low undulating flight, several of the White's Thrushes obtained in this country have at first been mistaken for Woodcocks. The earliest recorded British example was shot in January, 1828, in Hampshire; receiving a scientific as well as a trivial name in honour of White of Selborne, from Eyton, who supposed the species to be undescribed. Other individuals have since been obtained in Cornwall, Devon, Somerset, Gloucestershire, Shropshire, Suffolk, Norfolk, Yorkshire, and Durham; once in Berwickshire; and in Ireland in counties Cork, Longford, and Mayo. Most of these occurrences have been in the winter, and only one in October.

On Heligoland more than a dozen have been taken in September and October, and on the return migration up to the 23rd of April.

Many stragglers have been obtained, mostly in autumn, from Norway and Sweden southwards to Italy and the Pyrenees. Dr. Menzbier thinks that White's Thrush breeds no further off than the Ural, as three specimens have been obtained there in summer; and eastward this species, which might be more appropriately called the "Golden" Thrush, extends through Siberia from about the line of Krasnoiarsk on the Yenesei to Lake Baikal and Northern China; the winter migrations reaching to Southern China, the Philippines, and even Sumatra. In Japan it is common in Yokohama market in winter, and having been obtained in July on the volcano of Fuji, it was probably breeding there. A nest built on a pine-branch, close to which a pair of birds were seen, was obtained by Swinhoe near Ningpo, and one of the eggs figured by Seebohm ('British Birds,' pl. 8) has a greenish-white ground with minute reddish spots: measurements 1·2 by ·9 in. White's Thrush is mostly insectivorous, but in China banyan and other berries are consumed. Its note is a soft plaintive *see*, audible at a long distance.

In the adult the bill is brownish; legs and feet yellowish-brown; upper plumage yellowish-brown tipped with black, darker on the wings; under parts white tinged with buff, and boldly marked with black crescentic spots; *a distinct light-coloured patch in the middle of the underside of the wing*; tail of *fourteen* feathers, the central four yellowish-brown and the rest dark brown, all tipped with white. Length 12 in.; wing 6·45 in. An Australian species, *T. lunulatus*, with only *twelve* tail-feathers, has not unfrequently been passed off as White's Thrush.

An example of the Siberian Thrush (*T. sibiricus*, Pallas), said to have been shot in Surrey in the winter of 1860–61, and originally supposed to be a melanism of the Redwing, was in the collection of the late Mr. F. Bond, who bequeathed it to the British Museum; while I fully believe that another was picked up exhausted at Bonchurch, I. of Wight, in the winter of 1874; but the evidence as yet is not sufficient to warrant the introduction of this species into the British list. Like White's Thrush, it has the light-coloured patch on the underside of the wing. The adult male is dark slate-grey, with a conspicuous white eye-streak, and white abdomen; the female is olive-brown above, and whitish-buff barred with brown beneath; both sexes having white patches at the tips of the tail-feathers. Wanderers have occurred as near our shores as France, Belgium and Germany.

THE BLACKBIRD.

TURDUS MÉRULA, Linnæus.

The Blackbird, "the Ouzel-cock so black of hue" of Shakespeare, is of general distribution throughout the British Islands, where it may be considered as a resident, excepting in some of the bleaker islands; but even in the Outer Hebrides it is increasing as a breeding-species, and it now nests in Orkney, and is said to have done so in Shetland, to which it is chiefly an autumn and winter visitor. Like the Mistle-Thrush, and probably for the same reasons, the Blackbird has spread northward and westward of late years; in several places supplanting the Ring-Ouzel; while in addition to our native-bred birds, some of which are partially migratory, large numbers visit us in autumn and winter.

In the Færoes the Blackbird has occurred in spring; it undoubtedly wandered to Iceland in the winter of 1877, and it has been recorded from the island of Jan Mayen. About 67° N. lat. in Norway appears to be its highest breeding-range; south of which it is found nesting down to the Azores, Madeira, the Canaries, both sides of the Mediterranean, Asia Minor, and even in the sultry depths of the Ghôr in Palestine. In Russia it does not appear to

range further north or east than the valley of the Volga; being represented in Turkestan, Afghanistan, and Kashmir by a larger resident species or form, which Seebohm named *Merula maxima*. In winter its numbers in southern countries are considerably increased by migrants from the north.

The usual nesting-places selected by the Blackbird are bushes, especially evergreens and hedge-rows; occasionally the ground; but the nest differs from that of the Thrush in being lined with dry grasses. The 4–6 eggs are of a greenish-blue, spotted and streaked with reddish-brown: measurements 1·1 by ·85 in. Blue varieties resembling eggs of the Starling are sometimes met with, but Mr. R. M. Christie has brought forward (Tr. Norw. Soc., iii, p. 588, and iv, p. 582) some evidence indicating that the Blackbird and the Song-Thrush may occasionally inter-breed, and it has been suggested that these blue eggs may be the result of such a union. Several broods are hatched during the season, the first often by the end of March. The old birds are much more shy during the breeding-season than is the Song-Thrush, but the cock, especially at pairing-time, is very quarrelsome. The food consists of worms, insects and their larvæ, slugs and snails, with seeds, hawthorn- and other berries in winter, and fruit in summer. The Blackbird's powerful song—heard at its best after an April shower—makes it a favourite for the cage, and it is further gifted with a considerable power of mimicry; while its noisy, rattling alarm-note, as it flits from the hedge-rows or copses to which it is partial, must be familiar to every one. A peculiarity by which the Blackbird may be recognized, even in a bad light, is its habit of sharply raising its tail the moment it perches. As in the case of the Song-Thrush, the young of this species sometimes assist the parents in feeding the second brood.

The adult male has the entire plumage glossy-black; bill and edges of the eyelids orange-yellow; legs and feet brownish-black. Length 10·1 in.; wing 5 in. The female is umber-brown, paler and more rufous on the throat and breast, with darker streaks—some mountain forms being exceptionally light-coloured; bill and legs brownish. The young male can be distinguished in the nest by its stouter bill and darker hue, especially along the carpal joint; and if a few of the first brown feathers of the breast be pulled out, these will be reproduced of a black colour. Later, the plumage is blackish-brown above, with pale shaft-streaks; under parts lighter. Even after assuming the adult plumage, young males of the year have blackish bills until their second year. Pied varieties and albinisms are by no means uncommon.

THE RING-OUZEL.

TURDUS TORQUÁTUS, Linnæus.

The Ring-Ouzel is the only one of our breeding Thrushes which is absent as a rule from our islands during the winter. It is true that individuals have been known to remain till after Christmas in England, Scotland, and Ireland, but the majority leave, in September and October, the wilder and more elevated districts in which they have passed the summer; and, after a comparatively short stay in the lowlands to feed upon the autumnal berries, they depart for the south. In April the Ring-Ouzel returns, and pairs are said to have nested occasionally in Hampshire, Suffolk, Norfolk, Warwickshire, and similar counties, but as a rule its breeding-places are in the wild and hilly districts of Cornwall, Devon, Somersetshire, the Pennine backbone of England and its spurs; in Wales; and in the greater part of Scotland, including the Orkneys, and most of those islands which present suitable features; to the Shetlands it is comparatively a rare visitor. In Ireland it frequents the mountainous districts in varying numbers during the summer.

There are two races of Ring-Ouzel. Our rather dark form also breeds in Scandinavia from about 58° to 70° N. lat., and thence eastward in suitable localities as far as portions of the Ural Mountains, beyond which the steppes appear to act as a barrier; and it is said to

nest sparingly in the south of Holland and Belgium. This form is found on migration over the whole of Europe, going down to North Africa and Egypt, Syria and Persia. In, and south of the mountains of Central Europe, the birds which breed have more or less white centres (as well as edges) to the feathers of the breast and under tail-coverts, and their appearance is decidedly spangled; but intermediate forms are frequent. This race also migrates southward to some extent, and it makes its nest in fir-trees; it has been named *T. alpestris* by C. L. Brehm.

On our moors the Ring-Ouzel begins to breed in the latter part of April, making its nest, similar to that of a Blackbird, in tall ling and heather, on the ledges of rocks, or in broken banks; sometimes at a moderate distance underneath fallen rocks; while the sides of streams or watercourses are favourite localities; and occasionally stunted bushes are selected. The 4, seldom 5, eggs are greenish-blue, flecked and spotted with reddish-brown; bolder and handsomer as a rule than those of the Blackbird, and more like those of the Fieldfare: average measurements 1·1 by ·85 in. Not unfrequently a second brood is produced in July. Few birds are bolder when their young are approached, the parents flying round the intruder, uttering their sharp alarm note of *tac-tac-tac*, *tac-tac-tac*; but the song is somewhat monotonous, and derives its principal charm from the scenery in which it is heard. The food consists of worms, slugs, and insects; the bird being also partial to moorland berries and those of the rowan or mountain-ash. The Ring-Ouzel frequently descends to gardens in the vicinity of its haunts, and is extremely bold in its attacks upon fruit; while in the vine-countries it feeds largely on grapes.

The adult male has the upper parts brownish-black, the outer margins of the wing-feathers grey; under parts blackish, except a broad white gorget; under wing and axillaries mottled with grey and white; bill black at the tip, the rest yellowish; legs and feet brownish-black. Length 10 in.; wing 5·5 in. The adult female is lighter and browner, with a narrower and duller gorget, which is scarcely perceptible in young females. A cock, little more than a nestling, in the British Museum, shot in Nairnshire on 1st September, is *blacker* than any adult. In autumn both sexes have the feathers conspicuously margined with grey.

THE ROCK-THRUSH.

MONTÍCOLA SAXÁTILIS (Linnæus).

The claim of the Rock-Thrush to a place in the British list rests upon an example shot on the 19th May, 1843, at Therfield, in Hertfordshire, and figured as above by the late Mr. Yarrell, who examined it before it was skinned; the bird is now in the collection of Mr. F. d'Arcy Newcome. Some other occurrences are recorded, but are not authenticated.

The individual in question had no doubt deviated on its spring migration to the westward of its usual course, but some of the regular haunts of this species are at no great distance from our shores; the central and side valleys of the Rhine, Moselle, Upper Meuse, and some portions of Alsace being visited every summer. The bird also breeds sparingly in the Hartz Mountains, Thuringia, and other suitable situations in Germany; while it has occurred several times in Normandy, Belgium, and Heligoland. In Switzerland and southwards it is generally distributed throughout suitable rocky districts, although often local; and where, as in Southern Spain and Northern Africa, its congener the Blue Rock-Thrush (*Monticola cyanus*) predominates, it retires to higher ground. From

the Carpathians eastward it breeds in Greece, Turkey, Southern Russia, Asia Minor, Persia, Turkestan, Southern Siberia, Mongolia, and North China; its migrations extending to the Gambia on the west coast of Africa, Egypt, Nubia, Abyssinia, and Southern Arabia; also to Tibet, Northern India, and Upper Burma.

The nest is placed in a hole among rocks, vineyard-walls, fortifications or ruins, and occasionally in a tree-stump. Moss, roots, and dried grass—without any clay—with a finer lining of bents, are the materials employed; and the 4–5 eggs are pale greenish-blue, sometimes slightly speckled with light brown: measurements 1 in. by ·75 in. Two broods are often reared in the year, incubation commencing early in May; and the parents display considerable anxiety when the nest is approached. The Rock-Thrush has a sweet and varied song, and, being also an excellent mimic, is highly esteemed as a cage-bird. During courtship the male from time to time rises singing into the air, then drops down almost vertically, and travels for some distance along the rocks. In fact all the Rock-Thrushes in their mode of nesting and in many of their actions resemble the Wheatears or Chats, thus forming a link between these and the true Thrushes, from which they differ in the comparative shortness of the leg and tail. The food consists of earth-worms, snails, insects and their larvæ, and wild berries.

The adult male has the head, neck, and throat greyish blue, passing into blackish-blue on the upper back; a white patch covers the centre of the back and dorsal scapulars; wings dark brown; lower back bluish-slate, mottled with grey; tail-feathers chestnut, the two centre ones chiefly brown; under parts bright chestnut; bill black; legs and feet brown. Length 7·5 in.; wing to end of the third and longest primary 4·75 in., the bastard primary being very small. In winter the white patch is less conspicuous, and the feathers have lighter margins. The young male, late in September, is much mottled with light brown and slate-grey on the upper parts, and has no white patch on the back; wing-feathers and coverts broadly tipped with buffish-white; breast and abdomen chestnut, barred with black, and with broad whitish edges which gradually wear off. The female is mottled ash-brown above, with but little grey about the head and back; chin and throat whitish; lower parts orange-buff marbled with brown; tail chestnut.

The Blue Rock-Thrush (*Monticola cyanus*) has been erroneously recorded as having occurred at Westmeath in Ireland; for complete refutation of the statement, see 'The Zoologist,' 1880, p. 67.

THE WHEATEAR.

SAXÍCOLA ŒNÁNTHÉ (Linnæus).

The Wheatear, one of the first of our spring-visitors, usually arrives in the second week in March; any birds seen earlier being probably those which, as exceptions, have wintered in mild portions of our islands. From early spring onwards the Wheatear is to be seen in suitable localities, jerking its white tail as it flits along, uttering its sharp *chack, chack,* on open downs, warrens, and poor land generally, while it ascends our mountains almost to their summits. Numbers still frequent the South Downs, especially on migration in August; but by the beginning of October nearly all have left us.

In summer this species is very widely distributed, ranging to the Færoes, Iceland, Jan Mayen, and Greenland; while it has been

recorded from 80° N. lat. (Feilden), Boothia Felix, and Point Barrow. Greenland appears to be the breeding-place of a large race which passes through our islands from the middle of April onwards, and seems to be somewhat addicted to perching on trees. Our ordinary form breeds throughout Europe, Siberia, Mongolia, and, at suitable elevations, in Asia Minor and North Africa; it visits the Canaries, and has of late years established itself in the Azores. The smallest examples are those found in Syria. In winter it migrates to a little south of the Equator. Crossing Bering Sea it visits Alaska; and accidentally it has occurred in Colorado, the eastern portions of the United States and Canada, and the Bermudas.

About the middle of April a loose nest of dry grass, lined with rabbits' fur, hair, and feathers, is placed in rabbit-burrows, crevices of stone walls, and peat-stacks on the moors, or under rocks and fallow-clods, in discarded tins and kettles, and even in old artillery-shells. The 5–6, often 7, eggs are very pale blue, sometimes minutely dotted with purple: measurements ·8 by ·6 in. Two broods are produced in the season. The old birds are wary and do not easily betray the situation of their treasure. The song of the male, often uttered on the wing, is rather pretty; and the bird also displays considerable powers of imitating other species. Its food consists of small spiders, insects—often captured flying—and their larvæ. The name has no connection with wheat, but is a corruption of *white*, and of the Anglo-Saxon *ærs*, for which the modern equivalent is 'rump'; and in fact as "white rumps" this species and its congeners are known in most of the European language.

Adult male in summer: forehead and eye-streak white; lores and ear-coverts black; head, neck and back grey; wings nearly black; rump white; the two central tail-feathers black nearly to the base, the others white with broad black tips; under parts white, with only a faint tinge of buff on the throat in old birds; under wing-coverts and axillaries mottled with dark grey and white; bill, legs and feet black. In autumn the new feathers are so broadly margined with rufous-brown that the male much resembles the female; and even on the spring arrival many of the upper feathers still retain buff margins. Length 6 in.; wing to tip of third and longest quill, 3·75 in. The female differs in having the ear-coverts dark brown; upper parts hair-brown; under parts buff, not unlike the south-eastern *S. isabellina*, in which, however, the *under wing-coverts* are *white*. The young are slightly spotted above and below, with buff tips and margins to the tail- and wing-feathers.

THE ISABELLINE WHEATEAR.

Saxícola isabellína, Rüppell.

My friend the Rev. H. A. Macpherson brought to me in the flesh for identification a bird shot by Mr. Thomas Mann, on a ploughed field and quite alone, at Allonby, Cumberland, on 11th November 1887; it proved to be the Isabelline Wheatear, and was exhibited at a meeting of the Zoological Society on December 6th. This south-eastern bird had not previously been recorded from Heligoland or any part of Western Europe, but it so closely resembles the female of the previous species that it might easily escape notice. The specimen, a female, is figured above, and Mr. Macpherson subsequently presented it to the British Museum.

The Isabelline Wheatear is an early spring-visitor to South-eastern Russia, especially the province of Astrachan and the arid plains of the Caspian, and to Asia Minor. From the above, after breeding, it takes its departure in autumn; but in Palestine, Egypt, Eastern Africa down to Somali- and Masai-land, Abyssinia, and Arabia, it appears to be a resident. Eastward it is found in summer across Asia—south of 56° N. and up to 10,000 feet above sea-level—to

Northern China and the Upper Amur; migrating to Northern India, &c.

The nest is generally placed in burrows; those of such rodents as *Lagomys ogotona* and *Spermophilus eversmanni* being utilized on the steppes of Daüria; while near Smyrna the extensive tunnels formed by the Asiatic mole-rat (*Spalax typhlus*) afford a convenient retreat. The eggs are pale blue, similar to those of the Common Wheatear, but a trifle larger: measurements ·82 by ·65 in. Breeding commences in February in Abyssinia; while by the middle of May young are to be found nearly fledged in Asia Minor. Two broods are probably reared in the season, as Canon Tristram obtained eggs in Palestine in June. Mr. Danford observed this Wheatear frequenting barren ground, bushy hillsides, and even fir-woods in Asia Minor, where it arrived on March 9th; and he describes its notes as very peculiar, "the most striking being a cry resembling that of a Sandpiper, which is uttered as the bird descends, after its hovering flight and lark-like song." The call-note is *zri, zri, zri.*

Adult male: upper parts pale sandy-brown; a buffish-white streak from the base of the bill upwards to the back of the eye; lores black; ear-coverts pale-brown; upper tail-coverts white; the two central tail-feathers blackish-brown almost to their bases, which are white; the remainder white for the basal third, and blackish-brown, narrowly tipped and margined with buff, on the lower two-thirds; wings brown, edged with buff, especially on the secondaries and coverts; under parts buffish-white, deeper on the neck and breast; *under wing-coverts* and axillaries *white*; the *underside* of the *quills* being also conspicuously *paler* than in the Common Wheatear. Bill and legs black. Length 6·5 in.; wing to the tip of the third and longest quill, 3·9 in.; tarsus 1·2 in. Female: duller in plumage and slightly smaller than the male. Young: streaked with dark brown on the head, neck and breast; wings and tail broadly margined with rufous-buff. In autumn, as with other Wheatears, the buff margins to the wing-feathers are very pronounced.

The distinguishing characteristics of the Isabelline Wheatear may be thus summed up:—it is larger, more tawny, and has more black in its comparatively short tail than any Common Wheatear; the colour of the under-wing is much lighter, and the bill and tarsi are longer.

THE BLACK-THROATED WHEATEAR.

Saxícola stapazína, Vieillot.

A male in adult plumage of this handsome South-European species was shot about the 8th of May 1875, near Bury in Lancashire, and subsequently recorded by Mr. R. Davenport, who, as should always be done in the case of such rare visitors, sent the specimen for exhibition at a meeting of the Zoological Society (P. Z. S. 1878, pp. 881, 977). A bird, probably of this species, was seen and sketched by Mr. H. B. Hewetson near Spurn, Yorkshire, on September 18th 1892 (Zool. 1892, p. 424, and 1895, p. 57).

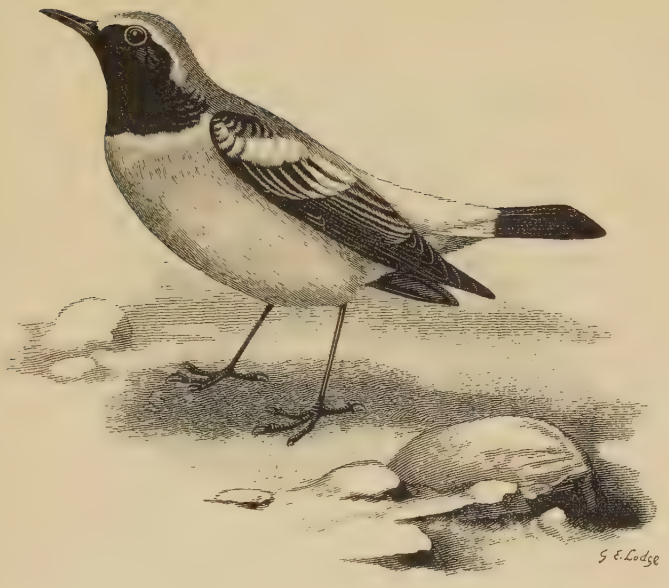
Although some occurrences formerly recorded under this name in Heligoland were really those of the Desert-Wheatear, yet the present species seems to have been obtained there once; while Schlegel records it from Haarlem, Holland. It breeds regularly about as far north as the line of the Loire in France; southward, in the Spanish Peninsula, Morocco, Algeria and Italy. In the latter country it meets with *S. melanoleuca*, Güldenstädt: a form which some ornithologists consider to be specifically distinct, characterized by a whiter back and larger amount of black on the throat. This form occupies Greece, South Russia, Asia Minor, Palestine and Persia; both races migrating wholly or partially to more southern

regions in winter, and meeting in Tunisia. The extremes of each are distinguishable in adult males, but there appear to be numerous intergradations, and I have therefore treated the bird under one heading.

The Black-throated Wheatear is very common in Southern Europe from the middle of March; making a loose nest of bents and grass in holes and crevices, especially in old ruins; and the late Mr. Seebohm found it breeding in the Parnassus up to an elevation of 3,000 feet. The eggs, rather elliptical-ovate in shape, are of a pale sea-green colour, freckled with brown: measurements, ·75 by ·6 in. In song, habits and food, this species resembles the Common Wheatear. The name *stapazina* refers to its noisy scolding note.

The adult male in spring has the forehead white, the crown and upper back golden-buff, becoming paler as the season advances; throat, lores and ear-coverts black; wings nearly black; lower back white; the two central tail-feathers black almost to their bases, the rest white, margined with an amount of black which is subject to great diminution and partial disappearance with age; under parts buffish-white; *under wing-coverts black*; bill, legs and feet black. In July and August, when the autumn moult takes place, the crown, nape, upper back and breast are rich buff; the wing-coverts and secondaries broadly margined with pale buff. Length 5·6 in.; wing 3·5 in. The female differs in having the throat merely mottled with black; the head streaked with hair-brown; upper back sandy-brown; wings dark brown; under parts dirty buff. The young resemble the female in general, but are rather more rufous; and they have less white on the tail than the adults of the respective sexes.

To obviate the perpetuation of confusion, it must be remarked that the species here described is the one which Mr. Dresser in his 'Birds of Europe' called "*Saxicola rufa* (Russet Chat)"; but the bird was re-instated under its old and well-known name by the Committee of the British Ornithologists' Union. Unfortunately Mr. Dresser transferred the specific name *stapazina* to the Eared Wheatear, *S. albicollis* (Vieill.), *S. aurita* (Temm.), another southern species, which has not yet visited our islands.



THE DESERT-WHEATEAR.

SAXÍCOLA DESÉRTI, Rüppell.

Although the Desert-Wheatear has a still more southern habitat than the preceding species, it has undoubtedly been obtained on three occasions in Great Britain. The first example, a male in autumn plumage, shot on the 26th November 1880, near Alloa in Clackmannanshire, was sent for exhibition at a meeting of the Zoological Society (P. Z. S. 1881, p. 453), by its owner, Mr. J. J. Dalgleish. The second, a bird in female plumage, obtained on the Holderness coast, Yorkshire, October 17th 1885, was sent for exhibition by Mr. W. Eagle Clarke (P. Z. S. 1885, p. 835), and is in the collection of Mr. J. H. Gurney. A third—apparently a young male—was shot near Arbroath on December 28th 1887, and was exhibited at a meeting of the Zoological Society of London on March 6th 1888, on behalf of the late Lt.-Col. H. M. Drummond-Hay, who published details in 'The Ibis,' 1888, p. 283.

Three wanderers of this species have been obtained on Heligoland: a male on October 26th 1856; a female on October 4th 1857 (these being originally and erroneously recorded as *S. stapa-*

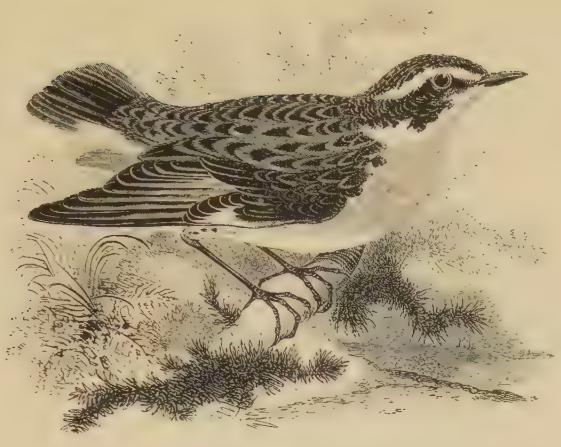
zina); and an adult male in full breeding-plumage, June 23rd 1880. The above appear to be the only notices of the occurrence of the Desert-Wheatear in Europe.

As the name implies, this species is to be found in dry, sandy regions, such as North Africa, Egypt, Nubia, Arabia, Palestine, Persia, Afghanistan, the plains of Turkestan up to an elevation of over 12,000 feet, and the mountain ranges to the north of Kashmir. In winter the bird occurs in North-western India, Scind, Baluchistan, Southern Persia, Somali-land and Abyssinia. Mr. J. H. Gurney describes it as the most universally distributed member of the genus in the Algerian Sahara.

The nest of the Desert-Wheatear is placed in crevices of rocks, walls of wells, in burrows, or under bushes. The eggs are of a greenish-blue, paler than those of the Black-throated Wheatear, with liver-coloured spots round the larger end: measurements ·75 by ·5 in. The food appears to be ants and other insects; the stomach of the bird shot at Alloa contained small flies. In its movements this species is even more restless than the Common Wheatear; and its song is said to be short and pleasing. The individuals observed by Mr. J. H. Gurney were estimated by him as being in the proportion of about eight in male plumage to one in female dress.

The male in spring has the crown sandy-grey, shading into buff on the back and lower wing-coverts; secondaries, brown in the centre, with pale margins; primaries blackish, with light margins to the inner webs, very conspicuous on the underside; under wing-coverts and axillaries black tipped with white; tail-coverts white; *tail black, almost to the base*; under parts white, washed with buff on the breast; throat and sides of neck to the shoulders black; a whitish streak above and behind the eye. Bill, legs and feet black; the latter small for the size of the bird. Length 5·6 in.; wing to the tip of 3rd and longest quill 3·6 in. The female is duller and greyer on the upper parts; the wings are brown, the under surface is buff, and the black throat is absent; but the large amount of black in the tail is always a feature. The young is like that of *S. stapazina*, except for its characteristic blackish-brown tail.

The members of this group are frequently denominated 'Chats,' but I have used the term 'Wheatear' to emphasize the difference between the longer-tailed, white-rumped species, and the shorter-tailed, streaked-rumped 'Bush-chats' of the genus *Pratincola*.



THE WHINCHAT.

PRATÍNCOLA RUBÉTRA (Linnæus).

The Whinchat generally arrives in the south of England rather before the middle of April, but seldom reaches the north of its range before the beginning of May; after which, until its departure in the early part of October, it is fairly distributed throughout England and Wales. It is, however, somewhat local in the west, becoming rare in Cornwall, and only occurring in the Scilly Islands during the autumnal passage. In Scotland, although absent in some districts, it may be said to range from the border counties to Caithness, and is very common in Sutherlandshire and the Moray basin; while it breeds sparingly in the Outer Hebrides and the Orkneys; and Mr. A. H. Evans identified it in the summer of 1887 in the Shetlands. In Ireland it is a summer visitor to the northern half and Kilkenny, visiting the south on migration.

A very rare straggler to the Færoes, the Whinchat breeds from about 70° N. lat. in Scandinavia southwards, in many parts of Northern and Central Europe; and, seeking in the mountains appropriate climatic conditions, it nests down to Sicily. In the countries bordering the Mediterranean it is, however, principally a migrant; wintering in Africa, down to Fantee on the west side and Abyssinia on the east, as well as in Arabia, Asia Minor, and Northern India. The Ural Mountains appear to form its eastern boundary in European Russia.

The breeding-season is from the beginning of May: the nest is

on the ground, or at most a few inches above it, among the stems of a small bush, or in coarse herbage and thick meadow-grass. It is a loose structure of dry grass and moss, with a lining of finer materials; the eggs, usually 6 in number, being greenish-blue, sometimes dotted or zoned with rust-colour: measurements, ·72 by ·6 in. Two broods are reared in the season. The call note is a sharp *ü-tick*, and the bird has also an agreeable song, uttered on the wing or while sitting on some low branch, accompanied by a fanning movement of the tail. Although, like the Stonechat, it frequents heaths and commons, the two species are seldom abundant in the same neighbourhood; and the Whinchat exhibits a partiality for pastures, whence the bird's local name of 'Grass-chat.' Its food consists of beetles, flies, and other insects—often sought for late in the evening; worms, especially the wire-worm, and small mollusks. It roosts on the ground.

The adult male has the lores, ear-coverts and cheeks dark brown; a clear white streak above the eye; crown and upper parts mottled with about equal proportions of sandy-buff and dark brown, more rufous on tail-coverts; base of tail white (except the two central feathers, which are dark brown), terminal-half dark brown, tipped and margined with buff; wing brown, the upper part showing a conspicuous white patch contrasted against a nearly black outer portion of the coverts; a smaller white patch on spurious wing; bastard primary smaller than in the Stonechat; under parts buff, turning to bright fawn-colour on the breast and throat; chin white, with a streak of the same running below the blackish cheeks to the sides of the neck. Bill black (stouter than in the Stonechat), legs and feet black. Length 5·25 in.; wing to the end of the 3rd and longest primary 3 in.

The female is duller in colour; the speculum smaller; the eye-streak buff; the upper breast slightly spotted. The young have the feathers margined with rufous and buff; the breast much more spotted than in the female, which otherwise they resemble. By September the young males have the wing-patches well defined.

In autumn the Whinchat assumes a duller plumage, leading to confusion with the Stonechat; and to this, perhaps, may be ascribed the records of the occurrence of the former in winter in the British Islands. In spring, according to Meves and other observers, it not only loses the paler tips of the feathers by abrasion, but has a distinct moult: an exception to the rule among the *Turdinæ*. White and pied varieties of this bird have been obtained.

THE STONECHAT.

PRATÍNCOLA RUBÍCOLA (Linnæus).

Unlike the preceding migratory species, the Stonechat is a resident in the greater part of our islands, although a partial movement takes place from the colder to the more sheltered situations in winter; at which season there is an influx of visitors from those parts of the Continent where the climate is too severe to allow of a stay. The Stonechat is somewhat local in its distribution and also erratic; frequenting a place for a few seasons, and then suddenly abandoning it. It breeds sparingly in the Orkneys, and is only a visitor to the Shetlands, but it is found to the extreme western limits of the Outer Hebrides, for I observed it on St. Kilda in August 1886. In Ireland it is common and resident.

The northern range of the Stonechat in Europe is not nearly so extensive as that of the Whinchat, and scarcely reaches to the south of Sweden; while in the north of Germany the bird is uncommon beyond the Elbe and unknown beyond the Weser, as well as of irregular distribution. In Central Europe it is unaccountably local; but in the south it is common, breeding in Spain even in the hot plains below Seville. Migrants from the north go down in winter to the shores and islands of the Mediterranean, North Africa, Asia Minor, and Palestine; and examples have been obtained to the south of Senegal. In South Africa the representative species is *P. torquata*, with white rump and deeper chestnut on the breast; North-eastern

Africa is inhabited by *P. hemprichi*, with more white than black in the tail; while east of the valley of the Volga the place of our species is taken by *P. maura*, characterized by a white rump and a predominance of black in the under wing-coverts and axillaries.

The nest, constructed very early in April, is concealed amongst the herbage on broken ground, or at the foot of some thick furze or other bush, and is composed of dry grass and moss with a lining of bents, hair, and feathers. The 5 or 6 eggs are of a bluish-green (greener than those of the Whinchat), spotted and zoned with pale reddish-brown: average measurements ·7 by ·58 in. The parent birds display considerable anxiety when the nest is approached, flitting from bush to bush and uttering a sharp *chack*, but it requires great patience to eye the female to her nest. Two broods are produced during the season. The song, commenced early in the spring, continues until the latter part of June, and, although short, is rather pleasing; but the scolding note, *h-weet*, *jur*, *jur*, uttered by the male as—conspicuous by his black head, white neck, and ruddy breast—he darts from spray to spray on some furze-covered moor, is the most familiar indication of the presence of this sprightly bird. The insect-prey of the Stonechat, including small moths and butterflies, is often taken on the wing; grubs, worms and beetles forming its principal diet, with the addition of a few seeds.

Adult male in May:—the head, throat, nape and back, black; the feathers of the latter edged with brown; tail coverts white, spotted with dark brown; tail and wings dark brown; a conspicuous white patch on the wing-coverts; sides of the neck white; breast bright rufous, lighter on the abdomen; under wing coverts and axillaries mottled black and white; bill, legs and feet black. In autumn the under parts are paler, and the upper feathers are margined with reddish-brown. Length 5 in.; wing to the end of the fourth and longest primary 2·55 in.; bastard primary much longer than in the Whinchat. In young males the crown of the head is brown streaked with black. Female:—striped brown upper parts; throat merely mottled with black; rump reddish-brown; the white wing-patch smaller than in the male and under parts much duller. Young:—throat buffish-white; feathers of the upper parts much tinged and margined with rufous-brown; otherwise as in the female.

THE REDSTART.

RUTICÍLLA PHŒNICÚRUS (Linnæus).

The date of the arrival of the Redstart is to some extent influenced by the prevailing temperature in the early spring: in 1893 I watched a male on March 31st, while several were recorded by other observers on 1st April. As a rule, however, it is not until the middle of April that the males attract attention by their bright plumage, as they flit, with lateral movements of the tail, from one low branch to another, along the skirts of the English woodlands. Although generally diffused throughout Great Britain, especially in the south, the Redstart is often unaccountably partial in its distribution; being uncommon to the west of Exeter, an unusual breeder in Cornwall, only an autumn visitor to the Scilly Islands, and rare in Pembrokeshire, though fairly plentiful in other parts of Wales. In Scotland it has of late years spread northwards; now breeding freely in the Moray basin, and only less so in Sutherland, Caithness and West Ross; but its visits to the Orkneys and Shetlands are chiefly autumnal, and in the Hebrides it is as yet unrecorded. In Ireland several pairs are now known to nest annually in co. Wicklow, and the bird has recently been found breeding in co. Tyrone.

On the Continent the Redstart is found in summer from the North Cape to the wooded regions of Central, and even Southern Europe, although better known in the latter on its spring and

autumn migrations. Eastward it stretches in summer as far as Lake Baikal; in winter it migrates to Madeira, the Canaries, the northern half of Africa, Arabia, and Persia; and Mr. E. Lort Phillips recently found it breeding on the high ground of North Somali-land. In Cyprus, Asia Minor, Persia, and the Caucasus—wandering to Turkey and Greece—the representative species is *R. mesoleuca*, the male of which has a white patch on the wing, like the Black Redstart; from the Lebanon eastward predominates the Indian Redstart, *R. rufiventris*, with black throat and mantle and *chestnut* underwing; in the Caucasus and Armenia, *R. ochrurus*, with a *black* underwing, prevails.

The nest is generally placed in hollow trees or in the holes of walls; exceptionally in such localities as the inside of an inverted flower-pot, or in the gable ends of inhabited buildings. It is rather loosely constructed of moss, dry grass, and fine roots, with a lining of hair and feathers; the eggs, usually 6, being of a light blue—paler than those of the Hedge Sparrow—occasionally speckled with reddish: measurements ·7 by ·55 in. Nesting commences early in May, and while the female is sitting the male is conspicuous in the vicinity, uttering his slight but pleasant song, or, when alarmed, a plaintive *wheet*. The food consists of flies, gnats, small butterflies, and other insects, spiders, &c.; the young being fed largely on caterpillars. Departure for the south takes place in September. In many parts of England this bird is known as the 'Firetail'; the second syllable of the name Redstart being derived from the Anglo-Saxon *steort*, a tail.

Adult male: forehead and eye-streak white; crown, nape and upper back slate-grey; wings brown, with pale outer edges; rump and tail chestnut, except the two central feathers, which are brown; chin, throat and cheeks jet-black; breast and axillaries chestnut; abdomen buff; bill black; legs and feet dark brown. Total length 5·4 in; wing to the end of the third and longest primary 3·1 in. The female has no bright colours on the head, being greyish-brown above, and lighter on the under parts, while the chestnut of the tail is less brilliant. Occasionally, however, a plumage resembling that of the male is assumed, and a bird exemplifying this was caught on her eggs in June 1882 (Tr. Norw. Soc. iv. p. 182). Birds of the year resemble the female. The nestlings are spotted above and below, and, but for the chestnut tail, are rather like young Redbreasts. In autumn the new feathers of both sexes are broadly tipped with white, producing a greyish appearance, but these edges disappear by the following spring.

THE BLACK REDSTART.

RUTICÍLLA TÍTYS (Scopoli).

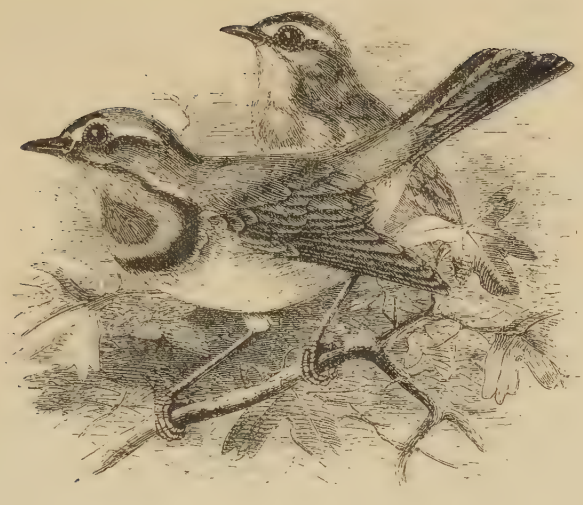
The Black Redstart, formerly considered a rare bird, is now a well-known visitor to many parts of the English coasts in autumn and winter, being, in fact, tolerably common at those seasons in the southern counties, especially in Devon and Cornwall, and remaining till March or April. In the Humber district, and at Flamborough, it is sometimes numerous on both migrations (J. Cordeaux). It has also occurred later in spring, and I saw an adult male at Erpingham, Norfolk, on May 15th, 1872; but as yet (1897) there is no really satisfactory evidence that the species has bred in this country. In Wales, it occurs irregularly in Pembrokeshire, but rarely elsewhere. In Scotland it is seldom noticed, the most northerly instance being on the Pentland Skerries, March 31st, 1884, and, perhaps, Kirkwall, Orkney. To Ireland it is not an unfrequent winter-visitor, and seventeen individuals were obtained at the lighthouses on the south and south-east coast from 1884–1895 (R. M. Barrington).

As a straggler the Black Redstart has been recorded in Iceland (once), the Færoes, Southern Scandinavia, and Denmark. It is common in Western Germany, where it arrives about the middle of March, but is not plentiful in the north-eastern districts. From Holland southward it is, however, abundant in summer, migrating from the countries on the north of the Alps in winter, but becoming

more or less sedentary in Southern Europe, and even in the mountains of North Africa, where it breeds at a considerable elevation. Eastward its range appears to extend to the Southern Ural, Asia Minor, and Palestine; in winter, to Nubia.

Breeding begins early in May; the nest, composed of dried grass, moss, and fine roots, with a lining of hair and feathers, being placed, with little attempt at concealment, in sheds, holes of walls, châlets, or clefts of rocks, up to 7,500 feet. The 5–6 eggs are of a pure shining white, sometimes with a very faint tinge of blue, and occasionally speckled with brown: measurements ·75 by ·58 in. Two broods are usually produced in the season. The call-note is a soft *sit* or *fitz*, and the male has a rather rich song, which he commences very early in the morning. In Belgium he begins to sing again in October. From his familiar habits the Black Redstart is one of the most conspicuous species on the Continent, as, jerking his tail, he flits along the sides of ravines in the country or the roofs of houses in cities; even in London one frequented the grounds of the Natural History Museum, South Kensington, from November, 1885, until the snow-fall of January 6th, 1886. Refuse, manure-heaps and sea-tangle seem to have great attractions for this bird. Its food consists principally of insects, caterpillars, and, on our sea-coasts, of small crustaceans.

Adult male: frontal band and lores black; crown, nape and back dark slate-grey; wings brownish, with a conspicuous white patch formed by the broad white margins to the secondaries; rump and tail, except the two brown central-feathers, bright bay; chin, throat, cheeks and breast black, passing into grey on the belly; vent buff; bill, legs and feet black. In younger males the wing-patch is less pronounced. After the autumn moult the black feathers of the under parts have grey margins, which so soon wear off that in Spain I have seen old males in splendid black plumage by the end of November. Length 5·75 in.; wing, to the tip of the fourth and longest primary, 3·4 in. Female: greyer on both upper and lower parts than the female Common Redstart, and her axillaries and under wing-coverts *grey* instead of buff. The young resemble the female. Young males often breed in their immature grey plumage; and owing to this, a supposed distinct species, since withdrawn, was described by Gerbe under the name of *R. cairii*. The full black plumage is not attained by the male until the second autumnal moult, and even then the intensity of the dark colour is considerably modified by the long grey margins of the feathers.



THE BLUETHROAT.

CYANÉCULA SUÉCIA (Linnæus).

There are two, and perhaps three, forms of the Bluethroat. The first, which has its breeding-grounds in Arctic and sub-Arctic Europe and Asia, exhibits a *red* spot in the centre of the blue gorget of the adult male; the second form, which breeds south of the Baltic, has the spot *white;* in the third and rarer form, the gorget is *unspotted blue*, but as the feathers, on being raised, show white at their bases, it seems probable that this last is an intensified development of the white-spotted form, with which alone it is associated as regards its geographical distribution. I am not aware of any distinctive characters by which the females and young of these forms may be separated.

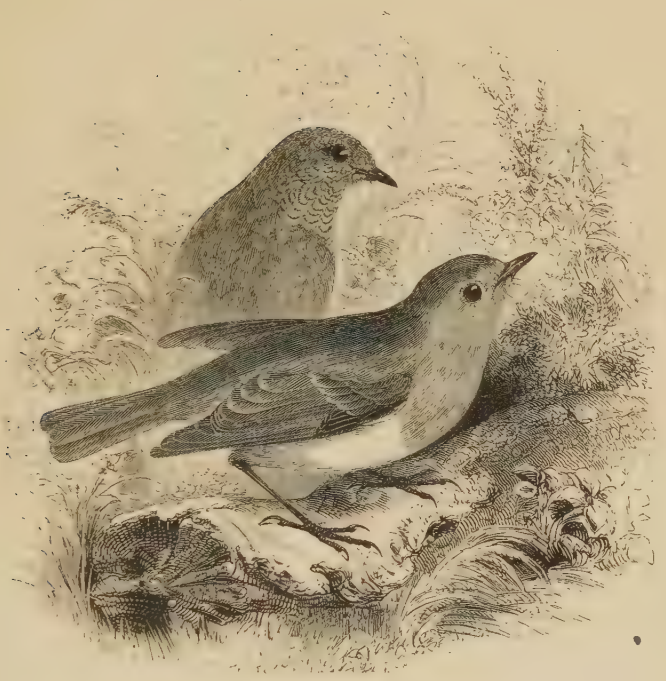
The Red-spotted form is the only one which has been proved to visit this country; for although an entirely blue-throated bird is said to have been observed by the late Capt. Hadfield in the Isle of Wight, it was not obtained. Since 1826 this Arctic race has been recorded in England at irregular intervals, generally on the autumnal migration, and sparingly in spring; sometimes on the southern, but more often on the eastern, coasts. In September, 1883, considerable numbers were observed on our east coast, especially in Norfolk, where a much larger flock dropped in the same month of 1884. Most of these visitors are immature, and they merely stay to

rest themselves after their flight from Scandinavia. Five are recorded from Scotland, one of these from the Monach Island lighthouse, Outer Hebrides, in October; another Pentland Skerries, Orkney, on May 12th, 1890. Not yet obtained in Ireland.

The Red-spotted Bluethroat breeds in the northern portions of Scandinavia and Russia, the elevated Pamir region, and Siberia as far as Kamchatka, and has even crossed to Alaska; migrating to China, India, Arabia and North-eastern Africa. On the spring passage this form does not pass along the west coast of Norway, but enters that country from the east. From Egypt westward the White-spotted Bluethroat appears, and predominates in North-western Africa and South-western Europe; breeding in France, Belgium, Holland, Germany, Western Russia, and as far south and east as Armenia and Afghanistan.

The nest, similar to that of the Redbreast, is placed in the side of a hummock among swampy thickets; the 5–6 eggs, laid about the middle of June, are pale olive with minute rufous spots: measurements ·75 by ·55 in. The food consists of insects—especially mosquitoes—and their larvæ, earth-worms and small seeds. The song, as heard during the nightless summer of the Arctic regions, is described as rivalling that of the Nightingale in richness, ending with a metallic *ting ting*. The cock is frequently bold and conspicuous, while the female skulks among the undergrowth, and is very seldom seen. In its habits the Bluethroat resembles the Redbreast rather than the Redstart.

Adult male, Arctic form: lores dark brown; a white stripe above the eye; upper parts clove-brown; bright bay tail-coverts and basal part of tail-feathers, except the two central ones, which are dark brown, like the lower half of the tail; chin, throat and gorget ultramarine-blue, with a large central spot of red bay; below the blue successive bands of black, white and bay; remaining under parts buffish-white; wing-coverts and axillaries golden-buff; bill black; legs and feet brown. Length 5·3 in.; wings to end of 3rd–4th, and longest primaries, 2·85 in. Female: differs in having the whole of the under parts tawny-white, except a dark brown band across the chest; but old examples show some blue and bay feathers there. Young: like the female; the nestling streaked with black, similar to a young Redbreast, but with the base of the tail bay. In autumn the new feathers have grey tips, which are shed by the following spring.



THE REDBREAST.

ERÍTHACUS RUBÉCULA (Linnæus).

The Redbreast, familiarly known as the Robin, is probably the most characteristic of our British species; for, in addition to the early and legendary associations which combine to render it a favourite, it is also a resident species, conspicuous from its bright plumage. Generally distributed throughout the British Islands, it has undoubtedly increased in the north with the spread of plantations, and it is now found breeding in some of the Hebrides and sparingly in the Orkneys, although as yet only a migrant in the Shetlands. In autumn the young are, to some extent, driven away and forced to emigrate by their parents, who, in their turn, when pressed for food in winter, resort to the vicinity of our dwellings, where they are almost universally welcome. At this season numbers arrive from the Continent: shunning the cold of the northern regions where they have passed the summer, even within the Arctic circle.

The Redbreast has been observed in May on the island of Jan Mayen, but it has not yet been recorded in Iceland, though it visits the Færoes in autumn. Southwards it breeds throughout Europe down to the South of Spain (where it is very local), North-western Africa, the Canaries, Madeira and the Azores; eastward, across Russia—where it is not abundant—to the Ural Mountains. Its winter migrations extend to the Sahara, Egypt, Palestine, Asia Minor, North-western Turkestan and Persia; but in the last-named country we also find *E. hyrcanus*: a somewhat larger form—of doubtful specific validity—with ruddier breast, and chestnut margins to the upper tail-coverts. On migration the Redbreast is by no means treated with the same consideration as with us, being snared in large numbers for the table on the Continent, where, perhaps in consequence, it frequents woodlands and mountains, and is less familiar.

The nest, made of dead leaves and moss, lined with hair and a few feathers, is placed in banks, holes of walls, amongst ivy, and in hollow trees; but pages might be filled with details of the extraordinary sites sometimes selected. The 5–6, often 7 eggs, are usually white with light reddish blotches, but sometimes they are pure white: measurements, ·8 by ·6 in. Nesting begins in March, and two, or even three broods are produced in the year. The song, musical but of little compass, is resumed after the moult. The food is mostly insects and worms, but berries and fruit are by no means despised, and in winter, as is well known, bread-crumbs, meat, &c. are acceptable. A more pugnacious and domineering species than the Redbreast it would be difficult to find.

In the adult male the upper parts are olive-brown; frontal band, lores, chin, throat and upper breast reddish-orange, bordered with bluish-grey on the sides of the neck and shoulders; lower breast and belly dull white; flanks and lower tail-coverts pale brown; bill black; legs and feet brown. Length 5·75 in.; wing to the end of the 5th and longest quill 3 in. The female is usually duller than the male, but I have seen carefully sexed examples which were quite undistinguishable. The nestling—shown in the figure in the background—has a spotted appearance, the smaller feathers of the upper and under parts being yellowish-brown in their centres with blackish tips; but after the first moult, in August or early September, the young bird is like the adult, except that the orange-red of the breast is paler. Albino, grey, and mottled varieties of the Redbreast are on record.

THE NIGHTINGALE.

DAÚLIAS LUSCÍNIA (Linnæus).

This noted songster comes to us in the first or second week in April; the males preceding the females by several days. Although generally distributed over the greater part of England, it becomes rarer in the west, until in Devonshire a line is reached beyond which the bird is absolutely unknown; and, although it visits Herefordshire occasionally, the same may be said of Wales, except Glamorganshire and Brecon. A straggler to Cheshire, of questionable occurrence in Lancashire, and unknown in Westmoreland or Cumberland, it has bred more than once near Scarborough, and it has probably visited the valley of the Derwent, in Yorkshire; while in the exceptionally hot spring of 1893 Mr. G. Bolam saw and heard a male in the north of Northumberland. As regards Ireland, a specimen, said to have been shot near the Old Head of Kinsale, is in the museum of Queen's College, Cork.

On the Continent, Northern Germany appears to be the highest authenticated latitude for our Nightingale; south of which it is generally distributed throughout Central Europe. In such southern countries as Portugal, Spain, Italy, Greece and Turkey, it abounds in suitable localities; while it breeds also in North Africa, Palestine and Asia Minor. Its north-eastern limit in Europe appears to be the valley of the Vistula; and in Russia it is confined to the

southern provinces. From the Caucasus eastward to Turkestan and Persia, is found a closely allied form, *D. golzii*—rather more olive-coloured, with longer bill and tail; while in Scandinavia, Denmark, and Eastern Europe our bird is replaced by the rather larger "Sprosser," *D. philomela*:—a distinct species, less russet in hue, slightly spotted on the breast, and with a *minute bastard primary*. In autumn our Nightingale leaves Europe and even Asia Minor: wintering as far south as Abyssinia and the Gold Coast.

The nest, commenced early in May, is composed of dead leaves of the oak and other trees, and is usually placed on or near the ground in low underwood and close hedge-row bottoms—always on the warmer side. In Spain I have found it fully five feet from the ground, in the tops of broad hedges and the sides of clipped cypress and myrtle trees. The 4–6 eggs are mostly of an olive-brown, but some birds, which often return to the same place, lay eggs of a blue-green mottled with reddish-brown, somewhat resembling those of the Bluethroat: measurements ·8 by ·6 in. The young are hatched in June; after which the male discontinues his melodious song—uttered hitherto by day as well as by night in genial weather—and merely retains a harsh croak. Spiders, ants, and small green caterpillars are the food of the nestlings, and in July and August the young frequent fields planted with peas and beans; the adults live on worms, insects, ants' eggs, fruit and berries, especially those of the elder. Favourite resorts are small woods at no great distance from water and the coppices bordering damp meadows. The Nightingale does not bear captivity well, yet birds have been kept through the winter, and have even reared young in confinement. The well-known song needs no description; the alarm-note being a *wate, wate, cur-cur*. In August the young take their departure, the old birds remaining till September to complete their moult. Migration is supposed to be performed singly and not in flocks; but Mr. T. J. Monk states that on April 13th, 1872, Nightingales were resting in numbers under the bathing-machines along the whole length of the shore at Brighton.

In the adult the upper parts are russet-brown shading into reddish-chestnut on the tail-coverts and tail, the colour of the latter being very noticeable in flight; under parts greyish-white, turning to buff on the flanks and breast; bill, legs and feet brown. The sexes are alike in plumage. Length 6·5 in.; wing to tip of 3rd and longest primary 3·35 in. The young in first plumage are darker, with yellowish-brown shaft-streaks to the upper feathers and greyish-brown bars on the under parts.

THE WHITETHROAT.

Sylvia cinérea, Bechstein.

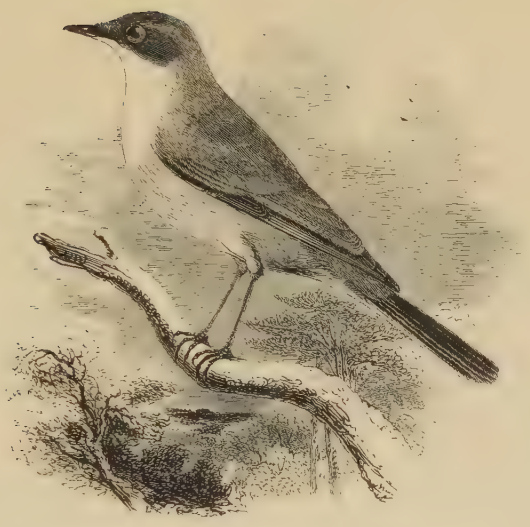
The Whitethroat arrives about the second week in April, remaining until the beginning of September. Throughout England, Wales and Ireland, it is the most generally distributed and plentiful of the Warblers; while in Scotland it is also common, and has extended its breeding range to the Dornoch Firth and West Ross. In the Outer Hebrides it is now known to nest near Stornaway, and its autumnal occurrence in the Orkneys has recently been authenticated, but its appearance in the Shetlands is exceptional.

The Whitethroat breeds up to about 65° N., in Scandinavia, and southwards throughout Europe down to the Mediterranean. In Asia Minor it is only found in summer, although said to be resident in Palestine. It frequents the Canaries and Northern Africa in winter, and its migrations extend down the west coast to Damaraland. Eastward, it breeds in Turkestan and South-western Siberia, wintering in Egypt, Abyssinia, and Arabia; its place being taken in the Altai and Tian-Shan Mountains, and North-western India, by a larger, darker, and greyer form, distinguished as *S. fuscipilea*. To the north of the Caspian, the arid steppes beyond the Ural Mountains appear to form the eastern boundary of our Whitethroat.

Hedge-rows and thickets overgrown with brambles are favourite resorts of this lively bird, and owing to its predilection for beds of nettles it is commonly known by the name of "Nettle-creeper." In May the slight but rather deep nest, made of fine grass stems and lined with bents and horsehair, is usually placed low down in almost any kind of coarse vegetation, or in straggling hedges; the 4–6 eggs are greenish-white or stone-colour, blotched and sometimes zoned with violet-grey and light brown: measurements ·7 by ·55 in. The food consists largely of *Tipulæ* and other insects; also fruit and berries during the season. The alarm-note is harsh and scolding: the male showing considerable annoyance at the presence of an intruder on his domain, and often following the pedestrian for some distance along a hedge-row, flitting from branch to branch with every feather on the throat and crest extended, agitating the outspread tail, and anon shooting almost perpendicularly into the air. The female is less demonstrative, and generally skulks amongst the herbage. The sweet but somewhat monotonous song of the male, uttered in snatches with great energy, is frequently to be heard by night as well as by day in May and June.

Adult male in spring: head and neck smoke-grey; mantle and wings brown, with broad rufous margins to the secondaries; tail-feathers brown, except the outer pair, which are mostly dull white, the next pair having broad white tips; chin and throat white, passing into vinous-buff on the breast; abdomen brownish-white, darker on the flanks; under wing smoke-grey; bill brown, lighter on lower mandible; legs and feet pale brown. Length 5·5 in.; wing to end of 3rd and longest quill 2·8 in. The female is duller, and has the head brown like the back, while the vinous tint of the breast is absent. The young are rather more tawny-brown and rufous.

Those Whitethroats which breed in the south of Europe, and which migrate only a short distance southwards, are rather small in size and brilliant in the contrast of their colours. A further step in the process of evolution has produced a perfectly recognizable species in the shape of *Sylvia conspicillata*; much smaller, with more conspicuous ear-coverts, and far brighter colours; but otherwise, in habits, colour of eggs, &c., a miniature reproduction of our bird. Everyone of ornithological tastes who has visited Gibraltar, Malta, or almost any place in the Mediterranean basin, will remember the Spectacled Warbler, and appreciate the force of the comparison.



THE LESSER WHITETHROAT.

SYLVIA CURRÚCA (Linnæus).

The Lesser Whitethroat, as its name implies, is a smaller bird than its congener; and although it arrives in England about the same time, or a trifle later, its distribution in our islands is decidedly less extensive. Tolerably abundant in the southern, eastern and midland counties, it becomes rarer in the west, and though it nests in Somerset and Devon, it only visits Cornwall on migration. It breeds regularly in Brecon, and its nest has been taken near Cardigan Bay. To Cheshire and Lancashire it is a well-known though not very numerous summer-visitor, and it is generally distributed in Yorkshire; but it is local in the Lake district; very rare in Durham; while, as regards Northumberland, Mr. G. Bolam has recorded two examples in September, 1881, near Berwick-on Tweed. In Scotland Mr. R. Service informs me that it is seldom met with in Kirkcudbrightshire, although better known in the eastern part of Dumfriesshire and down by the Borders, and he has only twice found its nest; it is said to breed sparingly and locally as far as Stirlingshire; but to the northern counties and in the outlying islands it is at most a rare visitor. One is stated in the 'Scottish Naturalist' to have been shot by Mr. G. Sim in Aberdeenshire, on November 4th, 1880, and Mr. Allan Briggs has recently recorded two obtained on North Ronaldshay, Orkneys, in autumn. In

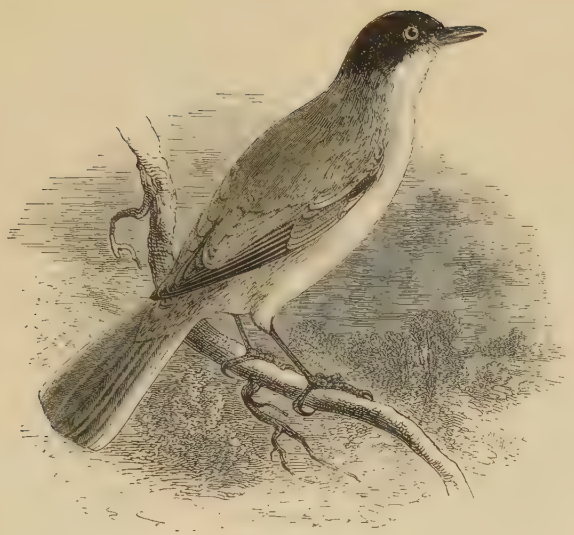
Ireland the first and only recorded example was taken at the Tearaght lighthouse on October 1st, 1890.

In Scandinavia the Lesser Whitethroat breeds up to about 65° N. lat ; while southward it is found in summer over the greater part of temperate Europe. It is, however, rare in the south-west, though I recently saw an individual in the Western Pyrenees, but a few pass the winter to the east of Málaga, and in some years the species is fairly common on migration about Valencia and Murcia. In Italy it is very local; but eastward it becomes more abundant, and in Transylvania its numbers far exceed those of its relative. Beyond the valley of the Lower Volga the doubtfully distinct Siberian form *S. affinis*, replaces it; in Kashmir, the Himalayas and the north-west of India comes *S. althea ;* while the Afghan *S. minuscula*, Hume, makes yet a fourth. Our typical bird winters in Northern and Central Africa, Arabia, Palestine and Persia.

The nest is a shallow structure of dried grasses, lined with hair, and is frequently placed in brambles or small bushes ; a predilection being shown for hazel and thorn-hedges, whence the bird's Lancashire name of 'Hazel-Linnet.' The 5–6 eggs, laid in May, are creamy-white, blotched with brown, and with under-spots of grey: measurements ·65 by ·5 in. The female sits very closely. The song of the male is continued very late into the summer, and has been syllabled as *sip, sip, sip*, frequently uttered in sultry weather ; the alarm-note is *check, check*. The food consists of insects and their larvæ, and fruit in the season. The autumn departure generally takes place in the latter part of September, but exceptional captures up to November are on record.

Adult male: crown smoke-grey ; lores and ear-coverts dark brown ; nape, back and tail-coverts brownish-grey ; wing-feathers ash-brown, with paler tips and margins, but without the rufous edgings to the secondaries, which are so conspicuous in the larger species ; outer tail-feathers greyish brown with white outer webs ; the rest of the feathers dark brown ; under parts white, with a faint rosy tinge, fading into buff on the flanks ; bill blackish ; legs, which are short and stout, slate-colour ; iris white. Length 5·25 in. ; wing to the tip of the 3rd and longest primary 2·6 in. The female is rather smaller and generally duller in colour. The young are like the female, except that the pale margins of the wing-feathers are more pronounced, and the irides are reddish-brown.

Sundevall states that this species, the Greater Whitethroat, and the Barred Warbler, all have a spring moult. Mr. J. Young, who has kept the Lesser Whitethroat for several years, confirms this as regards some of the quill-feathers, but not all.



THE ORPHEAN WARBLER.

Sylvia órphea, Temminck.

According to the late Sir William M. E. Milner a female Orphean Warbler was shot, and her mate observed, on July 6th, 1848, in a small plantation near Wetherby, Yorkshire; and from the state of her plumage she was believed to have been incubating. Virtually, however, the authority for this statement was Graham of York, a bird-stuffer and purveyor of rarities; but the bird is correctly named. In June, 1866, as recorded by Mr. J. E. Harting, a young bird unable to fly was caught near Holloway, in Middlesex, and having been kept alive by Sergeant-major Hanley for nearly six months, it was identified as an Orphean Warbler by the late Mr. E. Blyth. Nests and eggs erroneously supposed to be those of this species have been taken, but no other birds have as yet been identified.

In France the Orphean Warbler breeds sparingly in the Brenne district, beyond the Loire; more frequently in Poitou; and commonly in the south-eastern provinces. In Portugal and Spain it is abundant wherever the olive grows, and also among woods of conifers. It is local on the mainland of Italy, and very rare in the islands; visits Savoy in summer, and is said to pass annually up the valley of the Rhone to the Vosges, the vicinity of Metz, and Luxembourg. It has never been obtained, though said to have been seen, in Heligoland, Belgium, or Normandy. Rare in Tyrol,

it occurs regularly in Dalmatia, Greece, Southern Russia, Turkey, Asia Minor and Palestine; while a form known as *S. jerdoni*, with a somewhat larger bill and brighter colouration, is found in Persia, Turkestan and Northern India. South of the Mediterranean the Orphean Warbler breeds in Morocco, Algeria, and Tunisia; visiting Egypt, and pushing its winter migrations as far south as Nubia. None remain in Europe during the winter.

The nest, a tolerably compact structure of dry grass, lined with finer bents, thistle-down and the down of the cotton-grass, is generally placed in bushes, such as tamarisks, or in young cork-trees, about twelve feet from the ground. The eggs, usually five, are greyish-white, blotched and slightly scrolled with various shades of brown; much resembling those of the Lesser Whitethroat, but as large as those of the Garden-Warbler: measurements ·78 by ·6 in. Nests which I obtained near Málaga often contained one, and sometimes two eggs differing from the others in their abnormal size, and microscopic examination of the texture of their shell by Mr. Sorby, F.R.S., subsequently proved these to be eggs of the Cuckoo. Incubation begins late in April, and while the female is sitting the cock utters his song, louder and harsher than that of the Blackcap, from some neighbouring branch. The food consists principally of insects, varied by fruit in the season.

Adult male: head to below the eyes black, paler on the nape; upper parts dark brownish grey, with paler margins and tips to the secondaries; the outside pair of tail-feathers white on the outer half; the second and third pairs spotted with white at the tips; the remainder of all the feathers blackish-brown; throat white; breast and flanks buffish-white; under-tail coverts buff; bill nearly black, paler at the base; legs and feet dark brown; iris straw-yellow. The female differs merely in having less contrasted and browner tints. The above descriptions are taken from a pair of birds obtained, with their nest, at Málaga on May 23rd, 1869. Young birds resemble the female. Length 6 in.; wing, to the tips of the 3rd–4th and longest primaries 3·1 in. The white on the outer tail-feathers will always serve as a distinction between this species and the Blackcap.

Mr. W. D'Urban has stated that on April 16th, 1890, he watched in his garden at Exmouth a Warbler smaller than a Blackcap (which was close by), with jet black head and pure white breast and under-parts. The description suits *Sylvia melanocephala*, a species which is common in the South of France and the Peninsula, and which might easily be swept up with the tide of migration.

THE BLACKCAP.

SYLVIA ATRICAPÍLLA (Linnæus).

The principal arrival of this songster, hardly inferior to the Nightingale, takes place in England about the middle of April; but occasionally some Blackcaps remain with us through the winter, not only in the mild south-west, but even as far north as Berwick. Even after a severe winter I once watched a male at a very short distance, in Surrey, on March 5th, and Mr. Borrer has several times heard its note as early as the 1st of that month. The majority depart for the south in September. Although somewhat local, the Blackcap appears to be of tolerably general distribution throughout England and Wales. In Scotland it becomes scarce as a breeder beyond the Firths of Clyde and Forth, but its nest has been found as far north as Ross shire; while a pair attempted to establish themselves in a garden in Unst, in the Shetlands, to which group, as well as to the Orkneys, Caithness, Sutherland, and the Outer Hebrides the bird is a visitor, chiefly on the autumn migration. In the mild, moist climate of the south-west it remains until late in the year, and Mr. R. Service captured one near Dumfries on November 29th, 1881; while Mr. H. Evans informs me that it is found in Jura till December, and he believes it to be a resident. In Ireland it occurs sparingly in summer, the nest having been found in the counties of Dublin, Kildare, Wicklow, Carlow, Kilkenny, Tipperary,

and Mayo; while in winter its presence has been recorded several times, especially in the south.

From Scandinavia below 66° N. lat., the Blackcap is found breeding in every country of Europe, as well as in North Africa and Palestine; in fact, allowing for migration of individuals, the Blackcap appears to be a resident species in the basin of the Mediterranean. In the Cape Verd Islands a form breeds in January, but later in the Canaries. In Madeira and the Azores, where it appears to be resident, a variety with much more black on the head and shoulders of the male bird is not unfrequent. Its winter migrations have been traced to the Gambia, Abyssinia, and the Red Sea; Omsk in Siberia being its somewhat doubtful eastern limit.

The small but tolerably compact nest, built of dry grasses and lined with horsehair, is generally placed a few feet from the ground among bushes; a privet hedge being rather a favourite site. The 4–5 eggs, laid from May 9th onwards, are sometimes light yellowish-brown blotched with a darker shade (like those of the Garden-Warbler, though a little smaller;) in another variety the ground-colour and the blotches are suffused with a beautiful reddish hue: measurements ·73 by ·58 in. Two broods are reared in the season, and the male takes his turn at incubation, chiefly in the daytime. The food consists of insects, often taken on the wing; berries of the rowan, elder, &c.; and fruit, especially raspberries and red-currants, for the sake of which the nest is often placed in or near orchards and gardens. In the south the bird also pecks figs and oranges, and eats the berries of the pepper-tree.

Adult male: upper part of the head jet-black; nape ash grey; back, wings and tail ash-brown; chin greyish-white; throat, breast and flanks ash grey; belly white; bill horn-brown; legs and feet lead-colour. Length 5·75: wing to the end of the third and longest quill 2·75 in. The female, which is somewhat larger, has the top of the head bright reddish-brown, and the rest of the plumage is browner than in the male. The young at first resemble the female, but the males acquire the black head, with merely brownish margins, during the first autumn.

It has been stated that in winter adult males assume the plumage of the females; but I have seen hundreds of birds with black heads in the markets of Southern Europe at that season; and Mr. John Young, who kept a pair of Blackcaps alive for four years, assures me that the male never changes colour after the first autumn moult. In spring some, if not all, of the tail-feathers are said to be renewed, but Mr. Young states that this is not his experience.

THE GARDEN-WARBLER.

SYLVIA HORTÉNSIS, Bechstein.

Later in its arrival than the Blackcap, the Garden-Warbler seldom comes to us before the end of April or beginning of May, and is far more local than that species, although generally distributed over the greater part of England. It is not known to breed in the western portion of Cornwall, nor in Pembrokeshire, though it does so in other counties of Wales, especially Merioneth, Cardigan and Brecon. In Scotland, although it does not appear to be generally distributed, Mr. R. Service informs me that it is more abundant in the Solway district than the Blackcap; it has been recorded as nesting in Perthshire; an example was obtained on Barra, Outer Hebrides, on November 25th; and several have been taken on North Ronaldshay, in the Orkneys, in autumn. In Ireland the Garden-Warbler breeds in Fermanagh, Sligo, Roscommon, along the Shannon Valley, and probably in other districts (Ussher). The majority leave our islands about the end of September.

The Garden-Warbler is only a wanderer to the Færoes; but south of 70° N. in Norway and about 65° N. in Finland and Russia, it is found breeding through Europe down to the shores of the

Mediterranean; it is, however, locally distributed, and although common in Southern Spain, is not known to breed in Sicily or Greece, yet it does so in Palestine. On migration it leaves Europe by the middle of October, and, passing through Asia Minor and Northern Africa, is found in winter down to Cape Colony. Eastward its range appears to be bounded by the Caspian and the Ural Mountains; but possibly it may extend as far as Omsk, on the Irtisch, in Siberia.

The nest, rather loosely made of grass stems externally, but with a well-shaped inner cup of finer materials, is generally placed in low brambles, shrubs and ferns; sometimes among peas or in gooseberry-bushes in a garden. The 4–5 eggs, laid from May 14th onward, are white, marbled and blotched with shades of greenish- and buffish-brown; a good deal like one variety of those of the Blackcap, but never, as in that species, suffused with a reddish tint: they are also on the average a trifle larger and the shell is less glossy: measurements ·75 by ·6 in. Incubation lasts 13 days, and only one brood is, as a rule, reared in the season. The nestlings are fed largely on insects, particularly on the caterpillar of the white cabbage-butterfly; but later, peas, fruit of all kinds and berries, are largely consumed. From its partiality to figs this bird has acquired the Italian name of Beccafico, which is, however, used as a comprehensive term for many other small species. Its song is continuous and mellow, though softer and less rich than that of the Blackcap; the alarm-note being a harsh *teck*, resembling the sound made by knocking two small pebbles together. In its habits the Garden-Warbler is rather more shy and skulking than most of its congeners; and it appears to be intolerant of rivalry, for it is often scarce in those districts where the Blackcap abounds, and common where that bird is scarce.

Adult male in May: entire upper parts olive-brown, with a paler eye-streak; quill-feathers darker brown with narrow whitish tips and margins; under parts mostly buffish-white, purer in the centre of the belly, and darker on the flanks; bill brown, paler at the base; legs and feet lead-colour with yellowish soles to the latter; irides hazel; eyelids white. Length 5·75 in.; wing to the tip of the 3rd and longest quill 3 in. The female is slightly paler. The young are rather more greenish-olive than the adults, and have well-defined pale margins to the secondaries.

THE BARRED WARBLER.

Sylvia nisória (Bechstein).

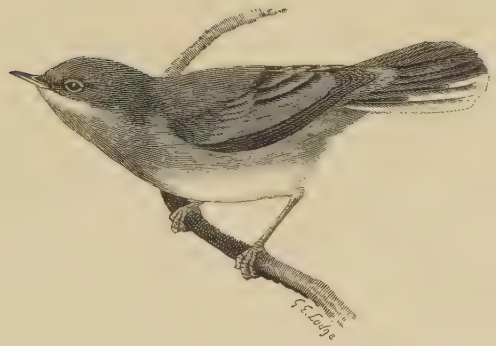
On March 4th, 1879, Professor Newton exhibited at a meeting of the Zoological Society a specimen of the Barred Warbler which had been shot many years previously in a garden near Queen's College, Cambridge. Since attention was thus drawn to this species as a visitor, eleven more examples have been obtained in the British Islands. Between 1884 and 1896, four occurred in East Yorkshire at dates varying from August 28th to November 13th, and three near Blakeney, Norfolk, from August 31st to September 10th. In Scotland, one was shot at Broadford, Isle of Skye, on August 16th, 1884, and another was taken at Dhuheartach light, Argyll, on

September 8th, 1896. In Ireland, the late Dr. Birkett obtained one at Belmullet, co. Mayo, on September 24th, 1884, and another, taken at Rockabill light on September 25th, 1896, was sent to Mr. R. M. Barrington in the flesh.

The Barred Warbler is a summer visitor to suitable localities in the south of Sweden, Denmark, Germany east of the Rhine valley —especially East Prussia, and Central Europe generally; while in the Mediterranean Nice is its western limit on migration, and in Italy it appears to be restricted to the northern and north-eastern provinces. It also nests in Bulgaria, Turkey, Southern Russia, Persia and Turkestan; in the latter at an altitude of 6,000 and even up to 10,000 feet. In October or November it leaves Europe, and probably winters in Central and North-Eastern Africa, having been met with in Nubia and Northern Sennaar, among thorn-hedges and thickets along the Nile.

Towards the end of May the nest, which is more neatly and firmly constructed than is usual among the Warblers, is placed in a bush, or on the branch of a tree near the ground, in a plantation; occasionally, however, at the height of some twenty-five feet. The eggs, generally 5 in number, are buffish-white marbled with grey, not unlike those of the Grey Wagtail: measurements ·85 by ·62 in. Only one brood is reared in the season. The food is principally insects, but in summer and autumn fruit and wild berries are freely eaten. The song is said to be little inferior to that of the Garden-Warbler; the call is a sharp *chek* and the alarm-note a rattling *rhar*. Plantations, thickets and thorn-growth are favourite resorts.

Adult male in spring: upper parts ashy-grey, brighter on the head and rump, browner on the wings; upper tail-coverts barred with dark slate and white; upper wing-coverts slightly barred and tipped with white; inner secondaries with broad white tips; tail-feathers tipped and margined on the inner webs with white, except the two central ones, which are ashy grey with faint darker bars; under parts greyish-white with numerous grey transverse bars, deeper on the flanks; axillaries, under wing- and under tail-coverts mottled white and grey; bill brown, paler at the base; legs and feet brownish; iris pale yellow. Length 6·5 in.; wing 3·4 in. Female: browner and less barred. At first the young bird is hardly barred at all, and much resembles a large Garden-Warbler with unusually pale tips to the flight-feathers; but subsequently bars appear on the buffish flanks and under tail-coverts, as well as on the rump, the breast remaining dull white till the spring.



SUBALPINE WARBLER.

Sylvia subalpína, Bonelli.

At a meeting of the British Ornithologists' Club on December 19th, 1894, Dr. R. Bowdler Sharpe exhibited a specimen of this Warbler, forwarded to him by Mr. J. Steele Elliott of Dudley, who had shot it on the island of St. Kilda, in the Outer Hebrides, in June of the same year. In 'The Zoologist,' 1895, p. 282, Mr. Elliott says :—"I first noticed it haunting the Minister's garden on June 13th, busily employing itself searching for food along a row of young peas; and it frequently flew to a parsnip in seed that grew in one corner of the garden, and which seemed to attract a greater number of insects. This little bird allowed people to approach quite close to it; and remained throughout Sunday until the following day, when I shot it in the presence of Mr. Fiddies and Mr. McKenzie, the factor. It was at once placed in spirits and forwarded direct to Mr. J. Cullingford, of Durham, for preservation. Its sex could not be ascertained with certainty. Its presence was probably caused by the great gale that blew across the island on June 12th, from the south-west."

The Subalpine Warbler, as its name implies, is a southern species; its nearest breeding-places being in the south-eastern districts of France and in Savoy, where it arrives regularly about the middle of April; while it occasionally reaches Geneva and even Neuchâtel. In Spain I observed it in Murcia, and obtained birds, with nests and eggs, from Málaga, as well as from the vicinity of Madrid; Col. Irby saw a small party at Cadiz on March 27th, and the late

Lord Lilford took the nest south of Seville early in May. On the African side of the Mediterranean this species is found from Tangier to Egypt; it is local in Italy, chiefly haunting the western slope of the Apennines; common in Corsica, Sardinia, Sicily, and other islands; abundant in Greece and the Archipelago; and extends to Asia Minor and Palestine. Its winter quarters seem to be in Northern Arabia, Kordofan and Senegambia; but its reported occurrence in the Canaries seems to be erroneous, and due to a confusion with the Spectacled Warbler, to which allusion has been made on p. 42.

The nest, of dry grass with a finer lining, is placed in a low bush; the 4–5 eggs vary from greenish-white with brown spots, to reddish-white with violet-brown spots and streaks; measurements ·55 by ·48 in. In Savoy only one brood is reared in the season, but I think that further south the bird is double-brooded, many nests being found in June. The male ceases to sing in July, when moulting begins. The bird is very active, working its way through low bushes like a mouse, then suddenly appearing and as rapidly dropping into cover again.

The mature male has a red ring round the eye; crown, ear-coverts and back dull grey; wings browner; tail-feathers greyish-brown, with a good deal of white at the tips of the outer pair; a broad white moustache-like streak stretching from the base of the bill backward; throat and breast warm chestnut-red, flanks paler, centre of belly whitish. Less mature birds have paler underparts. Length 4·7 in., wing 2·3 in. The female is less grey and more inclined to brown on the upper parts; there is little sign of ruddy colour on the throat, and the flanks are nearly buff. The young birds resemble the female at first, but the males begin to show red on the throat before emigrating.

THE DARTFORD WARBLER.

SYLVIA UNDÁTA (Boddaert).

This Warbler derives its trivial name from the fact that it was first obtained near Dartford in 1773, by Latham; but subsequent research has shown that, although local, it is more generally distributed in England than was for a long time supposed. Allowing for a little wandering, it may be described as a resident species in the south, chiefly frequenting furze-covered commons; and, apparently, extending its range both westward and northward of late years. It is known to breed in nearly all the southern counties from Cornwall to Kent inclusive, especially in Hampshire (and the Isle of Wight), Surrey and Sussex; sparingly in the valley of the Thames, and perhaps in some of the Midland counties; while it has been observed in Cambridgeshire and undoubtedly nests in Suffolk and Norfolk. It is a skulking little bird, especially in dull rainy weather; and a patch of gorse holding two or three pairs may be easily passed over, even by a careful observer, as untenanted. In Ireland it has never been seen.

It is possible that our stock of Dartford Warblers may be replenished from Normandy and the Channel Islands, though the bird is rather rare in the latter; but as a rule it migrates little, and no specimens exist to prove that it occurs in Belgium, Holland, Germany, or Heligoland. It is found throughout France in suitable localities, especially from the foot of the Western Pyrenees eastward;

in many parts of Portugal and Spain it is common, and I have watched it singing among the orange-gardens of Murcia, while it nests in the sierras of the south at elevations of from 1,000 to 3,000 feet. In Morocco and Algeria it is also resident, and it has been recorded from Lower Egypt and Palestine; but in Europe its eastern range is hardly known to extend beyond Italy and Sicily, the bird seldom reaching Malta. In Liguria, Corsica, Sardinia, and the Balearic Islands, it is to a great extent replaced by a close ally, *S. sarda*, of a nearly uniform grey tint.

The nest in this country is placed among the branches of the thickest furze; but on the Continent, especially in the south, broom and heather are selected. The materials are principally goose-grass and the softer shoots of furze, with a little wool and moss; the second nest of the season being generally more flimsy than the first, though on the whole the structure is tolerably compact. The 4–5 eggs are greenish-white, with olive or reddish-brown markings—bolder than on those of the Whitethroat: measurements ·68 by ·5 in. The first nest is built about the middle of April; the second in June or July. The food of both old and young consists principally of moths and other insects; but in autumn wild fruits are added. In its habits the Dartford Warbler is a restless bird, flitting from the top of one furze bush to another, with a quick and very undulating flight, and alighting in an abrupt manner as if the action were the result of an after-thought; the long meagre tail being spread for an instant, as if to aid the bird in an effort to retain its balance. On the wing the adult looks very dark: like a black long-tailed Wren. The usual note is a *pit-it-chou*, whence the French name *Pitchou*; but a scolding *cha-cha* is emitted when the bird is irritated. In severe winters its numbers are liable to be greatly reduced.

Adult male: upper parts dark slate-grey; wings dark brown with paler margins to the secondaries; the long dark fan-shaped tail with white outer margins and tips to the two exterior feathers; chin, throat, breast and flanks rufous-chestnut in spring, but streaked and spotted with white in autumn; lower breast and belly dull white; bill horn-brown at the tip, yellowish at the base; legs and feet pale brown; irides and eyelids orange-yellow. Length 5·1 in.; wing to the tip of the 4th and longest quill, 2·2 in. The female is rather smaller, browner, and shows less chestnut on the breast. The young are still paler, and whiter on the lower parts; irides brown.

Owing to its short, rounded wing, and comparatively long tail, this species has been made the type of a genus, *Melizophilus*, Leach.

THE GOLDEN-CRESTED WREN.

RÉGULUS CRISTÁTUS, K. L. Koch.

This tiniest of British, and indeed of European birds, is generally distributed throughout our islands; breeding, as a rule, wherever it is found, except in the Outer Hebrides, Orkneys and Shetlands, which it visits, but in which there are few plantations of conifers to invite its residence. On the mainland of Scotland there has been a marked increase in its numbers of late years, owing to the cultivation of firs and larches. It has been noticed since 1822 that in autumn immense flocks sometimes arrive on our east coast, extending quite across England and St. George's Channel into Ireland; in 1882 a migration-wave of this description, commencing on August 6th and lasting 92 days, reached from the Channel to the Færoes; in 1883 the migration lasted 82 days; and again, in 1884, for a period of 87 days. Similar 'waves' passed over Heligoland, with the exception of the last year, when, strange to say, the numbers were below the average. An unusual spring 'rush' took place in March and April, 1882. On such occasions bushes in gardens on the coast are covered with birds as with a swarm of bees; crowds flutter round the lanterns of light-houses, and the rigging of fishing-smacks in the North Sea is thronged with weary travellers. In April a return migration ensues.

From about 67° N. lat., the limit of the fir-woods in Scandinavia, and from Archangel and the Ural Mountains in Russia, the Golden-crest is generally distributed over Europe down to the Mediterranean and Black Seas; it is also a regular migrant to Malta in spring and autumn, on its way to and from North Africa. Eastward, it stretches across Asia to the Amur; examples from Asia Minor, Turkestan and the Himalayas being intermediate between our form and *R. cristatus* var. *japonicus*, with a greyish-brown nape, resident in Japan. At the other extremity of its range, a local race named by Seebohm *R. cristatus* var. *azoricus*, distinguished by its much larger bill, stouter legs, and longer tail, is found in the Azores; but the Canaries appear to be frequented by the typical form.

The beautiful nest of the Golden-crested Wren is generally placed *beneath* the extremity of a branch of a fir, yew, cedar, or other evergreen; the almost spherical structure being upheld by the lateral twigs. Occasionally it has been found upon the upper surface of a branch, or against ivy-covered trees, and even in a low bush. Built of the softest moss, felted with spiders' webs, wool, and a few lichens, and having a lining of small feathers, it is frequently ready for eggs by the latter part of March. These, 5–8 and even 10 in number, are buff-white, minutely freckled, especially at the larger end, with reddish-brown: measurements ·52 by ·4 in. The female sits very close. The sweet, but rather weak song of the male, uttered almost incessantly in fine weather, is often commenced in February; the call-note is a rather shrill *si-si-si*. Insects seem to form the chief food of this sociable little bird, which may often be seen in winter searching for the means of subsistence in the woods and groves, together with Tits and Tree-Creepers.

Adult male: forehead to above the eye, greyish-white, surmounted by a dark brown frontal streak, deepening into a black line below each side of the crest, which is bright yellow in front and rich orange further back; neck and back yellowish olive-green; tail-feathers ash-brown, with yellowish margins; wings ash-brown, with white spot-like tips to the secondaries, and a black bar across the upper part, contrasting with the white margins of the median and greater wing-coverts; under parts greenish-buff, whiter on the belly; bill very dark brown; legs and feet brown: irides hazel. Length 3·6 in.; wing to the tip of the 5th and longest primary 2·1 in. The female is duller than the male, with narrower black streaks below the crest, which is only lemon-yellow. The young bird has no crest, but the crown is rather darker in colour than the back.

THE FIRE-CRESTED WREN.

REGULUS IGNICAPÍLLUS (C. L. Brehm).

The Fire-crested Wren can only be considered an irregular visitor to our shores, and Mr. J. H. Gurney, in an excellent analysis of its supposed occurrences ('Zoologist,' 1889, p. 172) throws justifiable doubt on the correctness of some of the identifications, notably the first, near Cambridge in 1832, on the strength of which the species was admitted to the British list. However, between the months of October and April in various years, many genuine examples have been obtained on our southern and eastern coasts, chiefly in Cornwall and the Scilly Islands; more than twenty in Sussex; and some in every littoral county up to Yorkshire; a few in Berkshire, Oxfordshire, and Shropshire; and one (coll. E. Bidwell) near Pwllheli, North Wales, on March 24th, 1878. There are no authenticated records for Scotland or Ireland.

The Fire-crested Wren has a much less extended range northward than its congener; it is unknown in Scandinavia; barely reaches Denmark, though often visiting Heligoland; and does not occur to the north-east of the Baltic Provinces of Germany. It is rather partial to some parts of the Rhine district in summer; and, although local in its distribution, breeds in France, Spain, Italy, Switzerland, Central and Southern Germany, Greece, Turkey, and Southern Russia; while in the Taurus range of Asia Minor it is more abundant than the Golden-crest. In the mountain-forests of Algeria, and in some parts of Southern Europe, the Fire-crest is resident throughout

the year; its numbers being augmented in winter by migrants from the north. In Madeira it is represented by *R. maderensis*, with dull-gold crest, dark grey nape, and no black streak behind the eye; while a form with greyish-white lores found in the Canaries was distinguished by Seebohm as *R. teneriffæ*.

The nest of the Fire-crest is similar to that of the Golden-crest; but the 7–10 eggs may always be recognized by the much redder tinge of their ground-colour and spots: measurements ·52 by ·42 in. In Germany the branches of a fir-tree are almost invariably selected, the nest being seldom found in larches; and the same trees are frequented year after year. In the above country nesting does not begin before May; but in the south of Spain the young are able to fly by the middle of that month. Insects and spiders constitute the food. In the Pyrenees, with excellent opportunities for observing the habits of both species, I noticed that the Fire-crest was much more restless and erratic in its movements, darting away suddenly after a very short stay upon the gorse-bush or tree where it was feeding, and being often seen alone or in parties of two or three at most; whereas the Golden-crests, five or six together, would work steadily round the same bush, and, if I remained quiet, would stop there for many minutes. The note of the Fire-crest is a soft *zit, zit*.

The adult male has a golden frontal band, which unites on each side with a white streak passing above and behind the eye, and separating a parallel black line from the broader and blacker upper bands which enclose the rich orange yellow crest. This black line through the eye is one of the principal features which distinguish the Fire-crest from the Golden-crest; another important characteristic being the sulphur-green tint on the sides of the neck and shoulders. From the gape runs a third and smaller black streak. Mantle olive-green; wings and tail brown, margined with yellowish-green; the former doubly barred on the upper parts with brown and white; under parts dull buffish-white; bill black; legs and feet brown. Length 3·7 in.; wing 2·1 in. The female differs in having a paler crest. The young bird has no crest until after the first moult, but the characteristic triple band is always indicated.

An example of the American Ruby-crowned Wren, *R. calendula*, now in the British Museum, is *said* to have been shot near Loch Lomond in 1852, by the late Dr. Dewar, in whose cabinet this very conspicuous bird lay unrecorded for six years, when it was recognized by the late R. Gray!

THE YELLOW-BROWED WARBLER.

PHYLLÓSCOPUS SUPERCILIÓSUS (J. F. Gmelin).

This wanderer from Asia was introduced to the British list by the late John Hancock, who shot an example, now in the Newcastle Museum, on September 26th, 1838, on the sea-banks near Hartley, Northumberland, about four miles north of the Tyne. A second example, recorded by Gould as having been obtained near Cheltenham on October 11th, 1867, by Mr. J. T. White, passed into the collection of the late Sir John Harpur Crewe, while in the same month and year Mr. Pechell shot two in Scilly. On September 25th, 1886, the first Scottish specimen was taken at the lantern of Sumburgh Head lighthouse, Shetland, by Mr. James Youngclause, as recorded by Mr. Harvie-Brown, to whom it was sent in the flesh; on October 14th, 1890, the first Irish example was recorded from the Tearaght light by Mr. R. M. Barrington; on October 7th, 1892, Mr. G. H. Caton Haigh shot the bird now figured near Great Cotes, Lincolnshire; three appear to have been taken near Beverley, Yorkshire, and one in Norfolk, in October, 1894; others are said to have been seen in Holderness, as well as in South Devon.

On the Continent identified examples have been obtained, at intervals, near Berlin, Vienna, the Hague, Leyden, Hjelm in Denmark, and on the Riviera; while on Heligoland the Yellow-browed Warbler has been taken or seen more than eighty times between 1846 and the end of 1887—on its autumn migrations, with the exception of two in April and May (Gätke). Its summer home appears to be in the pine-forests of North-eastern Siberia, from the valley of the Yenesei eastward to the Pacific, and from the moun-

tains of Lake Baikal northward to the Arctic circle. The bird passes through Mongolia and North China on migration, and winters in South China, Assam, Burma and North-eastern India (Seebohm). Canon Tristram obtained it at Jericho; and Severtzoff found it nesting in Turkestan up to about 8,500 feet.

The account of the finding in Kashmir of a nest and eggs supposed to belong to this species, was given by Mr. W. E. Brooks in 'The Ibis' for 1872; and reproduced in the 4th Edition of 'Yarrell's British Birds,' as well as in Mr. Dresser's 'Birds of Europe'; but the parent bird was subsequently distinguished by Mr. Brooks himself as *P. humii*. Seebohm obtained the first authenticated nest of the typical Yellow-browed Warbler, on June 26th, 1877, in the forest between the Kurayika and the Yenesei. It was built in a slight tuft of moss and bilberry, domed, exactly like the nest of our Willow-Wren, and composed of dry grass and moss, with a lining of reindeer-hair. The eggs, 6 in number, are pure white, thickly spotted at the larger end with reddish-brown; measurements ·6 in. by ·45 in., one of them being figured by Seebohm on Pl. 10 of his 'British Birds,' a work which contains the best account extant of this Warbler. In its habits, says Gätke, this bird has little affinity with the restless Golden-crests, which it only resembles in size and the double bar across the wings; and in Heligoland it is universally known by a name equivalent to 'Barred Willow-Warbler.' When it alights on a tree, it begins at the lower branches and works steadily up to the top, searching for its insect food. Gätke describes the note as *hyüf*, a little drawn out.

The bird in autumn has the crown olive-brown, with a very pale ill-defined line down the centre; a strong yellowish-white stripe over the eye from the base of the bill to the nape; a short streak of the same colour beneath the eye, and a narrow dusky band passing through the eye to the ear-coverts; neck, back and rump olive-green; ridge of the wing bright lemon-colour; wing-feathers dusky, with pale yellow edges which become broader and whiter on the secondaries; two conspicuous bands of lemon-colour across the coverts (in the Golden-crest these markings are spot-like); tail brown, the inner web of the outer feathers edged with *white*; under parts pale yellow on the flanks, whiter on the belly, bill brown, paler at the base; legs and toes brown, with the under surface of the toes inclining to yellow. In summer the green and yellow of the plumage have largely suffered from abrasion, and the general tints are olive-grey. Length 3·8 in.; wing 2·15 in.

PALLAS'S WILLOW-WARBLER.

PHYLLÓSCOPUS PRORÉGULUS (Pallas).

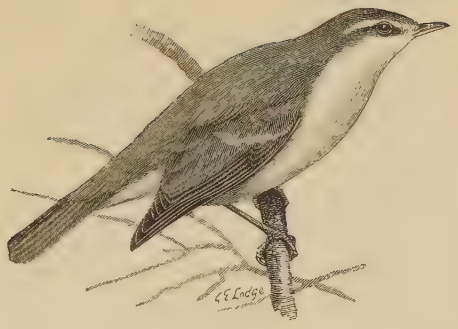
On October 31st, 1896, a specimen of this small Warbler was shot by Mr. Ramm, amongst the long grass by the sea-wall at Cley-next-the-Sea, Norfolk, and proved on dissection to be a female, probably adult. It was recorded by Mr. T. Southwell ('Zoologist,' 1896, p. 467), exhibited by Mr. Dresser at a meeting of the Zoological Society of London on December 1st, and full details have since appeared in 'The Zoologist' for 1897, pp. 5–12; as well as in the Tr. Norw. Soc., vi. pp. 210–290, from Mr. Dresser, who has added valuable notes on other rare Warblers.

Pallas's Warbler was for some time known to us by Gould's trivial name of "Dalmatian Regulus," commemorative of the reported place of capture of the first European example, in 1829. Hancock's Yellow-browed Warbler, shot near Newcastle in 1838, was supposed to be this species until 1863, when Swinhoe pointed out the error, and Hancock subsequently rectified his identification ('Ibis' 1867, p. 252). On October 6th, 1845, Claus Aeuckens, of Heligoland (then a lad), killed a small Warbler with a stone, completely crushing it, but he brought an undamaged wing and "a portion of the lower back with part of the lemon-yellow plumage still adhering to it" to the late H. Gätke, and in 1879 comparison with a Siberian skin of Pallas's Warbler showed that the wanderer to Heligoland was that species. Another was watched at short distance by Aeuckens and his nephew, on October 29th, 1875, but the bird was sheltering under the edge of the cliff from a violent east wind, and

must have been lost in the surf if shot; the characteristic bright lemon-colour of the rump was observed. No other occurrences in Europe have been recorded up to this date; but since 1884 Mr. N. Zaroudnoï has found that this species is a tolerably regular migrant towards the end of September and early in October, among the wooded hills near Orenburg, at the southern extremity of the Ural range.

The summer home of this Warbler is, however, far more to the eastward. Pallas described the species from a specimen obtained on the Ingoda river, in Transbaikalia, and, according to Taczanowski, the bird is generally distributed throughout Eastern Siberia, being especially common about Lake Baikal, as well as in Northern China, where it nests in the mountain forests; while on migration it goes as far south as Burma. It also breeds in the Himalayas, unless the race named by Gätke *P. newtoni* should be admitted to the specific rank which Mr. Dresser denies it. Captain Cock found several nests in May and June at Sonamerg, in Kashmir; these being on branches of fir-trees, at elevations varying from 6 to 40 feet, composed of moss, wool and fibres, profusely lined with feathers, and domed, with an entrance at the side. Eggs 6–7, white, spotted with dull red and purple, measurements ·54 by ·44. Examples obtained near Kultuk by Dr. Dybowski are figured in the 'Journal für Ornithologie' for 1873, pl. i. fig. 10. The song is said to be melodious and powerful; Mr. Styan renders the call-note as *kweet*.

In the adult the general colour of the upper parts is of a yellower tint of olive than in *P. superciliosus*; the eye stripe is much brighter lemon-colour, and down the middle of the crown is a strong yellow stripe which makes the feathers on each side of the head seem brownish by contrast; edges of the wing-coverts distinctly yellow; across the rump a broad band of bright lemon-colour; the inner web of the outer tail-feathers *not* white; under parts pale yellowish white. Length 3·7 in., wing 2 in.



THE GREENISH WILLOW-WARBLER.

PHYLLOSCOPUS VIRIDÁNUS, Blyth.

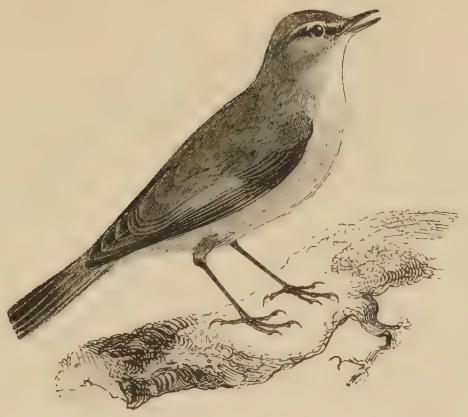
On September 5th 1896 Mr. G. H. Caton Haigh shot a female of this Warbler at North Cotes, Lincolnshire, and this specimen, having been exhibited at the Meeting of the British Ornithologists' Club on October 21st, forms the subject of the present illustration. Mr. Haigh has remarked that "the weather prevailing at the time of its appearance was such as usually results in a great immigration of small birds; the wind backing to the east on the night of September 3rd, and blowing from that quarter on the 4th and 5th, with heavy rain commencing to fall on the afternoon of the 4th, and continuing without intermission for twenty-four hours." Ornithologists who deliberately go out to search for birds under such circumstances richly deserve the success which may reward one excursion out of a hundred.

On Heligoland the Greenish Willow-Warbler was obtained on September 25th 1878, May 30th 1879, and June 3rd 1880. No other occurrences are known as yet in the Western half of Europe, but in Russia the species is found no farther off than the Olonetz department—a trifle to the north-east of St. Petersburg, Jaroslav and Kazan. Its true summer home is, however, more to the eastward, on the wooded slopes of the Ural Mountains and the banks of the river of the same name, in Transcaspia, Turkestan, the Tian-Shan Mountains (probably the Altai), and the Himalayas; while in winter the bird visits the greater part of the peninsula of India, and Ceylon.

A newly-made nest, found by Mr. W. E. Brooks in Kashmir, at

an elevation of about 11,000 feet, is described as domed and placed on the steep side of a ravine full of small birch trees; but it was empty, and the eggs are still undescribed. According to Dr. Scully, Blyth, and other observers, this Warbler frequents small bushes and is of restless habits; its note is said by them to be weak and resembles *tiss-yip*, *tiss-yipp*, often repeated; while Sabanaeff says that—in the breeding-season—its note is a very shrill *psi*, *psi*. The bird is the Greenish Tree-Warbler of Jerdon.

The adult is similar to our Willow-Wren (p. 70), but is greener on the upper parts and decidedly less yellow below, the under edge of the wing being nearly white; the tips of the greater wing-coverts are yellowish-white, and form a *conspicuous single bar*; bill brown above, yellowish-brown below; tarsi dark olive. Length, 4·25 in.; wing 2·25 in.



THE CHIFFCHAFF.

PHYLLOSCOPUS RUFUS (Bechstein).

The Chiffchaff is the earliest visitor among our spring migrants; the familiar note, from which its name is derived, being sometimes heard at the beginning of March, while a few birds often pass the winter in various sheltered portions of our islands, especially in Devon and Cornwall. Tolerably abundant in summer in our southern counties, and particularly so in the south-west and midlands, the Chiffchaff is somewhat rare, or local, in Norfolk, Lancashire and the north-west of Yorkshire; but more frequent in Cumberland, Westmorland, Durham and Northumberland. In Scotland it is everywhere much scarcer than the Willow-Wren, and very rare to the north-west of the Great Glen, while merely a straggler to the Outer Hebrides and Orkneys. In Ireland it breeds in every wooded district.

In Northern Europe the Chiffchaff ranges in summer to a little above the Arctic circle and as far east as the valley of the Volga, beyond which it is replaced by the Siberian Chiffchaff, *Phylloscopus tristis*, a rather smaller bird, browner and duller in coloration. Southward, our Chiffchaff is generally distributed in suitable localities as far as the shores and islands of the Mediterranean, and is more or less resident south of the Pyrenees and the Alps; while its numbers are largely augmented at the times of migration and in winter. At the latter season it is abundant in some parts of Africa down to Abyssinia; also in Arabia, Palestine, Asia Minor and

Persia. In the Canary Islands a smaller form, *P. fortunatus* of Canon Tristram, is resident.

The nest of the Chiffchaff is usually placed near to, but a little *above* the ground, in rank vegetation or ferns; occasionally in ivy against a wall, at an elevation of a couple of feet or so, while instances are on record in England of the nest having been found from three to nine feet up, in laurel, holly, bramble, and other bushes. In this country nidification begins about the end of April; the oval domed nest, with a hole rather nearer the top than the middle, being composed of dry grass, leaves and moss, with an abundance of feathers as a lining. The eggs, commonly 6 in number, are of a pure or creamy-white, spotted with purplish-brown, and sometimes with underlying blotches of violet-grey; occasionally they are spotted with pale red: average measurements ·6 by ·45 in. A second brood is produced in June. The song, if such it may be called, ends in May, to begin again in September, and by it the presence of the bird is often betrayed while the owner of the voice is invisible, for the Chiffchaff frequents the branches of loftier trees than the Willow-Wren does; groves of tall elms and larches being peculiarly attractive. Its food consists of insects and their larvæ. By October the autumn migration from our islands may be said to have terminated, except for those individuals which, as already stated, remain till December or even through the winter, and these, if severe weather sets in, pay the penalty for running such a risk.

Adult in spring:—olive-green on the upper parts, rather yellower on the rump; a pale yellow streak above the eye, passing into white behind the ear-coverts; wing-coverts, quills and tail-feathers dull brown, edged with olive-green; chin, throat, breast, belly and lower tail-coverts dull white, tinged with greenish-buff; under wing-coverts pale yellow; bill brown; iris hazel; legs and feet very dark brown. Length 4·6 in.; wing 2·35 in.; tarsus ·6 in. The plumage is alike in both sexes. The young are slightly greener than the adults and the eye-streak is fainter. After the autumn moult the yellow tint in the plumage is much more pronounced.

The Chiffchaff may be distinguished from the Willow-Wren by its smaller size, duller hue, darker legs, and more rounded wing. The 2nd quill is equal in length to the 7th, and the outer webs are emarginated near their tips up to the 6th inclusive. In the Willow-Wren this emargination only reaches to the 5th, and the 2nd is equal in length to the 6th quill.

THE WILLOW-WREN.

PHYLLOSCOPUS TRÓCHILUS (Linnæus).

The Willow-Wren makes its appearance in the southern portions of this country about the first week in April, and from that time until the middle of September it is by far the most abundant of the three species of small greenish-yellow Warblers which annually visit us. In England it is generally distributed, although somewhat local in Cornwall; and it is common in suitable parts of Wales. To the mainland of Scotland it is a regular and abundant summer-visitor, and in the northern districts its numbers have considerably increased of late years; but to the Outer Hebrides, Orkneys and Shetlands (as well as the Færoes) it appears to be only a wanderer, chiefly in autumn. In Ireland it is very common. Occurrences of this bird in winter, in the milder districts of our islands, have often been recorded.

The Willow-Wren ranges nearly as far as the northern extremity of the Continent in summer, while southward it breeds throughout the greater part of Europe down to the Straits of Gibraltar, and eastward to the Caucasus; in Siberia to as far as the valley of the Yenesei. Its winter-quarters may be said to begin in the south of France, and extend throughout the basin of the Mediterranean; but the majority

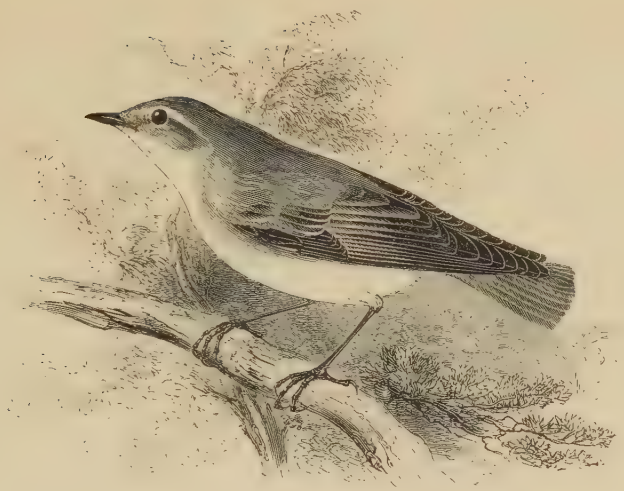
of birds pass on to the oases of Africa, and some even to Cape Colony. It is not improbable that a limited number pass the summer in suitable localities in Northern Africa.

The domed nest, loosely constructed of dry grass, and always lined with feathers, is generally placed among long herbage *on* the ground, but sometimes at the foot of a bush; exceptionally up to four feet from the ground, or even in a hole in a wall. The shape of the nest has procured for this species and its congeners the name of "Oven-birds"; while in many places the Willow-Wren is also known as the "Hay-bird," from the dry materials employed, or perhaps from the fact that the nest is often found in the corner of a hay-field. The 6–8 eggs are white, blotched and speckled with much lighter red than is the case with the eggs of the Chiffchaff, but exceptionally they are pure white: average measurements ·62 by ·46in. In England the first brood is hatched about the middle of May, a second being often produced in June. The merry song of the Willow-Wren, consisting of a few often-repeated notes, may be heard during the season in nearly every coppice; and sometimes calls attention in our London parks to a begrimed songster which would otherwise be almost unrecognizable. When the bird is aware that its nest is approached, or when calling its young together, its usual note is a plaintive *whit* or *tewy*, and at such times great solicitude and disregard of danger are displayed. Inasmuch as its food consists chiefly of flies, *aphides*, and other insects, this species is useful to the gardener, although it pecks and damages currants and other fruit to an unimportant extent.

The adult male in spring has the upper parts olive-green, yellower on the rump; a yellowish streak over the eye and ear-coverts; wings and tail olive-brown, margined with greenish-yellow; under parts yellowish-white, more sulphur-coloured on the flanks; under wing-coverts brimstone-yellow; bill, legs and feet brown. Length 4·9 in.; wing 2·7 in.; tarsus ·7 in. The sexes are alike in plumage. In autumn the general tint is yellower, especially in young birds.

Varieties of the Willow-Wren are uncommon; but in May 1861 a primrose-coloured bird was shot in Surrey (Harting), and in August of the same year a similar example was shot in Suffolk (Stevenson).

The Willow-Wren may be distinguished from the Chiffchaff by its larger size, generally yellower tinge, paler tarsi, and by having the outer edges of the primaries emarginated as far only as the 5th inclusive; whereas in the Chiffchaff the 6th is also emarginated.



THE WOOD-WREN.

PHYLLOSCOPUS SIBILÁTRIX (Bechstein).

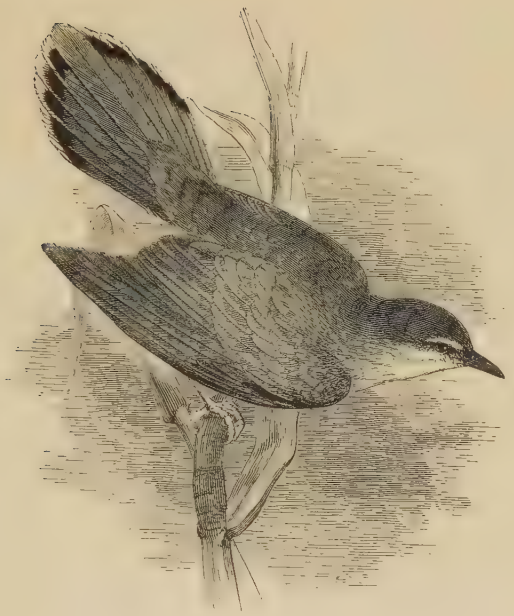
The Wood-Wren, the largest of the three members of the genus which habitually visit us, is the latest to arrive, seldom appearing even in the south of England before the middle of April; while in September it departs for the winter. Owing to its marked preference for woods—especially of beech and of oak—it is more local in its distribution than the two preceding species; for example, although very common in some of the eastern parts of Cornwall, it is of rare occurrence in the west of that county. It is to be found in suitable localities throughout England, and, locally, in Wales (abundantly in Merioneth); while in St. Leonard's and Tilgate Forests in Sussex, the New Forest, Sherwood Forest, and the woodlands of Cumberland, Westmorland, Yorkshire, Durham and Northumberland it may be called numerous. In Scotland it is fairly distributed, and has apparently spread northward of late years, being recorded by Messrs. Harvie-Brown and Buckley as breeding in the south-east of Sutherlandshire, and as having been identified at Dunbeath in Caithness, and in West Ross. The late Mr. A. C. Chapman recognized it on North Uist, in the Outer Hebrides. In Ireland its eggs have been found in Galway, while the bird has frequently been observed in Wicklow, and occasionally in some other counties.

The Wood-Wren has only once been proved to visit Norway, but it is found in Sweden as far north as Upsala; while it is very common

in the Baltic provinces, though rarer in South Finland, and only a straggler to Archangel. Eastward it can be traced to Kazan, the lower valley of the Volga, the Caucasus, and the western shore of the Caspian. In Palestine, Asia Minor, and Greece, it chiefly occurs on migration: but it breeds in Turkey and the greater part of Europe, although rarely in the extreme south; while it is only a migrant in Spain, and almost unknown in Portugal. It appears probable that a few remain during the summer in the mountain forests of the Atlas; the winter migrations extending to Madeira, the Canaries, and the Gold Coast on the west side of Africa, as well as to Abyssinia on the east. Notwithstanding its comparatively long wings, the Wood-Wren appears to hug the land on passage far more closely than is customary with the Willow-Wren and the Chiffchaff, thousands of which annually visit Heligoland on their migrations; whereas the Wood-Wren is seldom met with there.

Like its congeners, this species makes a domed nest of dry grass, but there is *no lining of feathers*. Sloping wooded banks are favourite situations for the nest, which often is not merely *on* the ground, but is actually set *in* some natural hollow among scanty undergrowth and dry leaves. The hen at times sits very closely, and when fairly beaten out she will feed in an unconcerned manner for a quarter of an hour or more, uttering a low *pi-ó*; after which she works round to a branch above her nest, drops down abruptly, and enters it in an instant. The 5–7 eggs, laid about mid-May, are white, thickly spotted and frequently zoned with purplish-brown and violet-grey: average measurements ·65 by ·55 in. (*P. bonellii*—a miniature Wood-Wren, common on the Continent, especially in the south—lays similar but much smaller eggs.) The food is principally insects, often taken on the wing, and berries in the season. The call-note is *dee-ur*, *dee-ur*, *dee-ur*; the shivering song, which may be syllabled as *chit*, *chit*, *chit*, *chit*, *chitr*, *tr-tr-tr-tr-tr-tre*, is accompanied by rapid vibrations of the wings and tail.

In spring the adult has a broad and characteristic sulphur-yellow streak above and behind the eye; the upper parts yellowish-green; wings greyish-brown, edged with yellowish, turning whiter on the inner secondaries; tail greyish-brown; belly and under tail-coverts white; breast and throat sulphur-yellow; bill, legs and feet brown. Length 5·2 in.; wing, to the tip of the 3rd and longest quill, 3·1 in.; the first or bastard quill being very short; tarsus ·7 in. In plumage the sexes are alike; the young differ in being rather yellower than the adults. The coloration, larger size, and proportionately long wing distinguish this species from its allies.



THE RUFOUS WARBLER.

AËDON GALACTÓDES (Temminck).

The Rufous Warbler is a southern species, which has been obtained in England, as a straggler, on three occasions. The first example was shot by the late Mr. Swaysland near Brighton on September 16th 1854, and according to Mr. W. Borrer of Cowfold, who recorded it, the bird was a male preparing to moult. On September 25th 1859, after the prevalence for a week of a strong southerly wind, a very thin bird, which had lost its tail, was shot at the Start, in Devonshire, by Mr. W. D. Llewellyn, who presented it to the British Museum. A third was obtained in a turnip-field near Slapton, Devon, on October 12th 1876, as recorded by Mr. H. Nicholls (Zool. s.s. p. 5179). These occurrences, all in autumn, show that the individuals in question were merely wind-driven waifs from the south; nor is it likely that many others have escaped observation, the bird being conspicuous by its plumage and habits. It resembles a large pale-coloured Nightingale, with white tips and black spots on a broad fan-shaped tail.

The Rufous Warbler does not appear to visit France, or even the

northern portions of the Peninsula; but in Southern Portugal and Spain it is abundant from the third week in April until the end of September. To the mainland of Italy it is a somewhat rare straggler; but it visits Malta on its migrations to and from Northern Africa, where, from Morocco to Egypt, it is generally distributed throughout the greater part of the year. In winter it goes to Abyssinia, and has been found in the mountains of that country in May at an elevation of 3,500 feet. In April, according to Canon Tristram, it arrives in Palestine, and breeds to the south of Beyrout; but north of the Lebanon we meet with a very closely-allied species, *Aëdon familiaris*, which is much less rufous on the upper parts, and has the central pair of tail-feathers brown instead of chestnut. The latter breeds in Asia Minor, Persia, Turkey, Greece, the Caucasian district, and Turkestan; wandering, strange to say, across the line of *Aëdon galactodes*, to Italy, Nice, and even Heligoland.

Breeding begins by the end of May; the rather bulky nest being often placed, without any attempt at concealment, at some distance from the ground, on a branch or in a fork of a tamarisk bush; sometimes between the roots of a tree in a bank-side; and frequently in the cactus-hedges which border vineyards. Wool, hair, feathers and any soft materials are used for the lining, amongst which a piece of snake's-skin is generally to be found. The eggs, usually 5 in number, are pale grey, streaked and blotched with ash-brown and dull violet, much resembling those of the Tawny Pipit: measurements ·88 in. by ·63 in. In its habits this bird is lively and restless, constantly flirting its expanded tail; whence its Spanish names of 'Alza-cola,' and 'Alza-rabo.' I have not found it to be at all shy, until it becomes conscious of being watched and followed: a proceeding which it naturally resents, as do most birds. The original English name of Rufous *Sedge* Warbler is remarkably inappropriate, as the bird is never seen in sedges, and is rather partial to arid places. Its food consists of insects. The song resembles that of the Redbreast, delivered in Thrush-like jerks (Aplin).

Adult male: upper parts chestnut-brown; a broad whitish streak above the eye to the nape; quills brown with reddish-buff margins; tail rich chestnut with a narrow blackish terminal band on the two central feathers, and a broad sub-terminal black band with increasingly large white tips from the centre to the outer feathers; under parts sandy-white, more tawny on the breast and flanks; bill, legs and feet brown. Length 6·5 in.; wing to the end of the 3rd and longest quill 3·5 in. The female is slightly, if at all, smaller and paler than the male.

RADDE'S BUSH-WARBLER.

LUSCINÍOLA SCHWARZI (Radde).

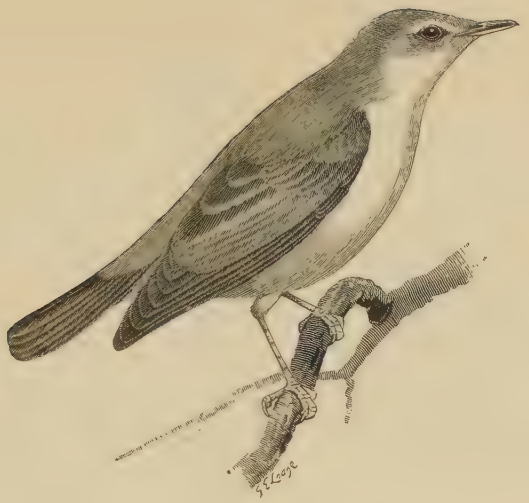
For the discovery in England of this wanderer from Eastern Siberia ornithologists are indebted to the persistent researches of Mr. G. H. Caton Haigh. On the 1st of October 1898, according to his custom at the time of migration, Mr. Haigh was diligently "working" the hedgerows which border the long sea-banks on the Lincolnshire side of the Humber, and, when near North Cotes (where he obtained the first British specimen of the Greenish Willow-Warbler), he was attracted by a strange and particularly powerful note. Thereupon the hedgerow was thoroughly beaten out, and the owner of the loud voice proved to be the Warbler in question—a bird about the size of a Wood-Wren. Easterly winds had been prevalent for some time. The illustration is taken from this specimen, kindly lent for the purpose.

Radde discovered this Warbler in a kitchen-garden at Kulussutajevsk, near the Tarei-nor, Transbaikalia, on the 22nd of September 1856, and named it *Sylvia* (*Phyllopneuste*) *schwarzi*, after his friend the astronomer to the expedition (Reis Süd. Ost-Sibir Bd. ii. pp. 260–263, tav. x. figs. 1–3). He afterwards found it in the Chingan Mountains; Dybowsky met with it in Daüria and the Ussuri country; Schrenck in the Amur Valley, and Dr. Nikolski in the south-western forests of the Island of Saghalien. From the dates at which specimens were obtained the bird evidently breeds in the above districts, but nothing is known of its nidification. The most detailed account of this Warbler is by Godlewski, who writes to the following effect:—On its migrations this species

is common throughout South-eastern Siberia and in Daüria, and is widely distributed in autumn; but it is rarer in Ussuria, though it appears to nest there, for it sings all through the summer. In the early part of August, during our journey across the Government of Yeniseisk, on the road between Irkutsk and Tomsk, it was also singing, so that it probably nests there. On passage it frequents the bushy margins of the forests, and it arrives early in June. Its song is short and not very agreeable, but loud, and the alarm-note may be rendered as *gibout-gibout*. We did not find its nest. It leaves Ussuria about the middle of September.

In winter Radde's Bush-Warbler visits Southern China, Pegu, and the northern and central portions of Tenasserim (Oates, Fauna Brit. India, i. pp. 399–400). Its large bastard-primary indicates its connection with the genus *Lusciniola*, in which Seebohm placed it: but Mr. Oates finds this genus too comprehensive, and relegates the bird to *Herbivocula* of Swinhoe. The upper plumage is olive-brown, tinged with tawny, especially on the rump; wings and tail brown, edged on the outer webs with the colour of the back; supercilium very distinct and reaching to the nape; lores and feathers behind the eye dark brown; ear-coverts buff and brown: lower plumage rich tawny-buff, paling on the throat and abdomen; axillaries and under wing-coverts buff. In summer the lower parts are nearly white, merely tinged with yellow or buff, more especially so on the vent and under tail-coverts. Bill horn-colour, the base fleshy-white and the gape yellow; iris brown; legs and feet fleshy-yellow. Length about 5–6 inches, wing 2·45, tarsus 0·9 inch, bill from gape 0·65. The 2nd primary is equal to the 8th, or intermediate between the 7th and 8th; the 1st (or bastard) primary is very long, measuring 0·85 inch in length (Oates).

The young bird, like Mr. Haigh's specimen, from which the figure is taken, is decidedly more olivaceous on the upper-parts. The bill is stout and deep for that of a Warbler, and the three rictal bristles on each side are very strong, but the supplementary hairs do not extend up the culmen nor cover the nostrils as in *Phylloscopus*. (From 'The Ibis,' 1899, pp. 1–3.) The broad and abrupt termination of the white superciliary stripe is very characteristic of this species.



THE ICTERINE WARBLER.

HYPOLÁIS ICTERÍNA (Vieillot).

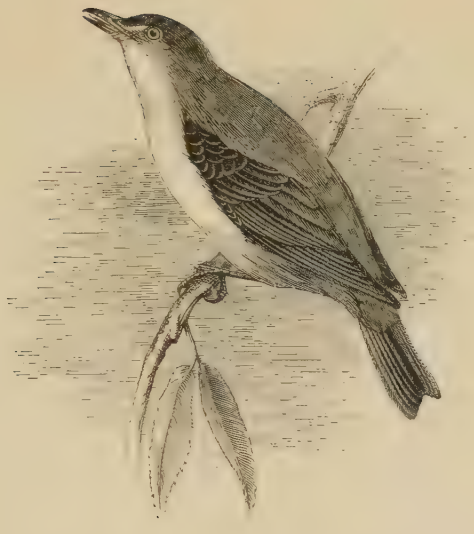
Although common on the Continent, even within sight of our shores, this member of a well-marked genus—not remotely allied to the group of Reed-Warblers—is only a rare visitor to England and Ireland. The first example was killed on June 15th 1848, at Eythorne, near Dover; a second (now in the Dublin Museum), on June 8th 1856, at Dunsinea on the banks of the Tolka, co. Dublin; a third was shot by Mr. F. D. Power on September 11th 1884, near Blakeney, Norfolk; a fourth near Newcastle-on-Tyne, June 20th 1889; a fifth at Easington, Holderness, Yorkshire, on May 28th 1891; a sixth at Wells, Norfolk, September 4th, 1893; and a seventh at Cley, Norfolk, September 7th 1896. Lastly, Mr. A. F. Ticehurst exhibited at the British Ornithologists' Club, on May 19th 1897, a female which had been shot at Burwash, Sussex, on April 30th. All these examples have been examined and identified by competent authorities; the significance of which will be apparent hereafter.

In Norway the Icterine Warbler breeds up to a little beyond the Arctic circle, although in Sweden, Finland and Russia, its northern range is less extensive. Eastward, the Ural and the valley of the Tobol form its known limits, while further south it has been obtained at Lenkoran, on the western side of the Caspian. In Asia Minor,

and South-eastern Europe as far as Malta, it is only known on its migrations to and from Africa—where it winters down to about 25° S. lat.; but in Sicily and on the mainland of Italy, where it arrives in April, it remains to breed; though Sardinia and Corsica are seldom, if ever, visited. In Central and Northern Europe, up to the Baltic provinces, Denmark, Germany, Holland and Belgium, it is common from the middle of May until autumn. In the north-east of France it is very abundant, and extends westward as far as the valley of the Seine, in and beyond which is found the next species, *H. polyglotta*, often confounded with our bird both as regards specimens and nomenclature. The Icterine Warbler appears to be rare in Savoy and unknown to the westward. Both species meet in Tunisia.

The nest, generally placed in the fork of a small tree or lilac bush in a slightly moist locality, is a firm, deep, and often beautiful structure of dry grass, wool, thistle-down, lichens &c., lined with horsehair. The 4–5 eggs are dull rose-pink, blotched, and sometimes scrolled with dark purplish-brown: average measurements ·72 by ·55 in. In Holland incubation begins about the end of May or early in June, almost every garden containing a pair; and the presence of an intruder of his own, or any other small species, is promptly resented by the male. The song has been much admired for its variety, and its supposed imitation of the notes of other birds—whence the German name *Spottvogel* or Mocking-bird; but Seebohm, who was gifted with a fine ear for notes and who had enjoyed considerable experience, saw no reason for supposing the bird to be more of a mocker than the Song-Thrush or the Nightingale. When the nest is approached a soft *pi-ti-u-y* is uttered; the alarm-note being an angry *tek, tek, tek*. The food of the Icterine Warbler is principally insects and small snails, but in summer and autumn fruit and berries are freely consumed.

The adult male in spring has the lores and a streak over the eye yellow; upper parts greyish-olive; quills brown, broadly margined and tipped with buffish-white on the secondaries, bastard primary very small; tail brown, slightly tipped with buff; under parts lemon-yellow; bill, brown above, yellowish below; legs and feet slate-brown. Length 5·2 in.; wing 3·1 in. The female is a trifle paler; the young bird is browner, with wider pale margins to the quills.



THE MELODIOUS WARBLER.

HYPOLAIS POLYGLÓTTA (Vieillot).

IN 'The Zoologist' for July 1897 (p. 333), Mr. A. F. Ticehurst stated that on April 30th, the same day as the Icterine Warbler already mentioned (p. 75), a smaller bird was also obtained at Burwash, Sussex, and he hinted that this might be the Melodious Warbler. Mr. G. Bristow, of St. Leonard's, having obligingly sent up the bird for identification, it has been examined by several ornithologists, and there can be no doubt that it is an example—a male by dissection—of *H. polyglotta*.

It is satisfactory to have the occurrence of this species thoroughly authenticated, because the event has for some time been expected. On May 26th 1886 the Rev. Allan Ellison saw and heard a bird which probably belonged to this species in co. Wicklow, Ireland, and during the very same month and year the Rev. M. A. Mathew frequently watched and listened to a similar bird at Stone Hall, in Pembrokeshire. In May 1897 (Zool. p. 332) Mr. Mathew listened to the song of another bird (or two) in East Devon, but this he identified as that of the Icterine Warbler, and he is to be congratulated on his powers of discrimination. An egg, which, from its small size and bright pink colour, belonged probably to the

Melodious Warbler, was sent to me in 1893 as having been taken near Lancing, Sussex, where the species was stated to have bred two or three years in succession.

The Melodious Warbler does not penetrate so far north as its larger relative, and its range is western. In winter it is found as far south as Senegambia, and its breeding-grounds begin in North Africa, extending from Tangier to Tunisia. A comparatively small portion of the birds which cross the Mediterranean visit both sides of the Adriatic, and wanderers have been recorded from South Tyrol, Bohemia and Moravia; while Italy is regularly visited, especially the western side. But the bulk pass the summer in the Iberian Peninsula, where the species is abundant, as well as in France up to Normandy, the boundary of its eastern distribution being, roughly, a line from Savoy to the valley and mouth of the Seine. It is much if a straggler has occurred in North-eastern France or in Belgium; on Heligoland Gätke obtained one, on May 23rd 1846.

Col. Irby gives April 25th as the earliest date of the arrival of this Warbler in the south of Spain, and May 14th for eggs; two broods are, however, produced in the season, as I have had eggs taken up to July 25th. The deep and cup-shaped nest is chiefly composed of down from willows and thistles, and is placed in bushes or low trees, generally at no great distance from water; the 4–5 eggs are rose-pink (brighter than those of the Icterine Warbler), with small blackish spots, and often with a large amount of fine hair-lines: measurements ·7 by ·5 in. The song is similar to that of the preceding species, but, having heard both, I agree with Mr. J. I. S. Whitaker and Mr. Aplin in considering that of the Melodious Warbler to be far finer, though less loud. The food consists of insects and fruit.

The adult may be distinguished from the Icterine Warbler by its smaller size; the absence of any pale margins to the inner wing-quills (except just after the autumn moult); its proportionally short wing; its larger bastard primary; and by the 2nd primary being *shorter* than the 5th (in *H. icterina* the 2nd is decidedly longer than the 5th). Length 4·9 in.; wing only 2·5 in.

THE REED-WARBLER.

Acrocéphalus stréperus (Vieillot).

The Reed-Warbler arrives in England regularly in the latter part of April ; and from that time until September it is common in most, but not all, of the localities apparently suited to its habits, in the southern, midland, and eastern districts. In the extreme south-west it is rare, seldom visiting Cornwall or the Scilly Islands, but it breeds freely in South Devon ; while in Wales it is fairly common, at least as far west as Breconshire, and especially about Llangorse Lake, where there is abundance of reeds (Phillips). It is plentiful in like situations in Cheshire (Nicholson) ; but in Lancashire, where suitable spots are few, it is naturally local, and in Lakeland it is rare. In Yorkshire it is abundant at Hornsea Mere in the East Riding, while it breeds up to the vicinity of Ripon, and also near Leeds ; but northward it is rare. There is as yet no proof of its occurrence in Scotland. In Ireland it is *said* to have been once obtained—near Dublin, on *December* 21st, 1843 (!), but not since ; while wings sent from lighthouses, and attributed to this species, have proved to be those of Blackcap and Garden-Warbler.

The south of Sweden, and about 58° N. lat., mark the northern

summer limits of the Reed-Warbler in Europe; but below this line the bird has been found breeding in suitable localities down to the extreme south of Spain and Italy, and perhaps in Algeria. Large numbers pass the winter in the basin of the Mediterranean, whilst others go down to Central Africa. Eastward, it is found as far as the countries between Baluchistan and South-western Siberia.

In the breeding-season the Reed-Warbler is by no means restricted to reeds, or even to the immediate proximity of water; and Mr. R. H. Mitford has given an account of the nesting of several pairs annually in lilac-trees in his garden at Hampstead. On the Thames and elsewhere the slender branches of willows and alders are frequently selected; the nest being often ten feet above the ground or water, and sometimes at a far greater elevation. Exceptionally nests have been found in hedges fringing a river. Where reeds are abundant, as in the Eastern Counties, they are usually preferred; and in every case the nest is supported by from two to four reeds or twigs, as the case may be, woven into the sides of the nest, which is so deep that the eggs will not roll out in the strongest wind. Begun when the reeds are quite short, the nest is often a full yard above the water by the time that the young birds are hatched. The materials employed are dry grasses and moss, with a little sheep's-wool, feathers, and horsehair for a lining, but occasionally there is so much wool or flowering grass that the nest seems to be made of them. The 4–5 eggs are greenish-white, clouded, blotched or freckled with dark olive, ash-colour, and black: average measurements ·72 by ·53 in. The Cuckoo is partial to the nest of this Warbler, and I have more than once found two eggs of that parasitical bird in the same nursery. Incubation begins about May 22nd. During the summer the varied song of the Reed-Warbler may be heard at intervals during the day, except in windy weather; but it is loudest and most attractive during the long twilight of evening. The food consists of aquatic insects—especially small dragon-flies—and their larvæ, spiders, slugs and worms, varied in the season by fruit and berries.

The adult male has a pale buff streak over each eye; upper parts brown, tinged with chestnut, especially on the rump; under parts white, turning to buff on the sides, thighs, and under tail-coverts. In autumn the chestnut and buff are more pronounced. Bill horn-brown above, yellowish-brown below; legs and feet purplish-brown. Length 5·25 in.; wing to end of 3rd and longest quill 2·5 in. The female, according to my experience, is decidedly less rufous during the breeding-season. The young are very tawny underneath.

THE MARSH-WARBLER.

ACROCEPHALUS PALÚSTRIS (Bechstein).

It is difficult to show in a wood-cut the points of difference between this species and the Reed-Warbler; nor, for that matter, can much be said in favour of many of the coloured illustrations which are supposed to represent the Marsh-Warbler. Gould's coloured plate in the 'Birds of Great Britain' undoubtedly represents a Reed-Warbler; so does, in my opinion, one in the late Lord Lilford's 'Birds of the British Islands'; while in Mr. Dresser's plate of the two species in his 'Birds of Europe' the respective tints are inadequately rendered, and the legs of the Marsh-Warbler are wrongly coloured stone-grey, although accurately described in the letterpress. The legs of the Marsh-Warbler are pale brownish flesh-colour; the general hue of the upper parts is at all times less rufous than in the Reed-Warbler, and distinctly greenish olive-brown; while, except when much abraded, the wing-feathers are more tipped and margined with pale buff. The under parts are tinged with sulphur-buff: not rufous-buff, as in the Reed-Warbler.

The Marsh-Warbler was first noticed in England as a spring-visitor in small numbers to Somersetshire, particularly to the neighbourhood of Taunton; several nests have since been found near Bath, as well as in Gloucestershire, while in Oxfordshire the

bird has been watched year after year by Mr. W. Warde Fowler and others. The late Mr. F. Bond had a genuine nest and eggs of this species, which he took some years ago in Cambridgeshire, but the pair of birds which he obtained at the same time and place are simply Reed-Warblers (Coll. Brit. Mus.).

Denmark, and Revel in Esthonia, appear to be the northern limits of the breeding-range of the Marsh-Warbler; while eastward it extends across Russia to South-western Siberia, Turkestan and Persia; the bird wintering in many parts of Africa, as far south as Natal. South of the Baltic it is generally distributed in suitable localities throughout Europe, except in the extreme west, respecting which further information is desirable. The 'Verderolle,' as it is appropriately named in French, undoubtedly breeds in Picardy, and as far west as Normandy; but as yet no specimens are forthcoming from the Spanish Peninsula, where the Reed-Warbler breeds freely. In the low ground of Switzerland, as at Interlaken, Brienz, Lucerne, &c., the Marsh-Warbler may always be observed; as well as along the valley of the Rhine, especially near Coblenz (J. H. Salter), and in Holland.

The Marsh-Warbler does not frequent reeds, but often breeds in cornfields, far away from any water except a small brook, though usually in some swampy thicket or osier-bed. The nests never overhang the water, although often close to it, in low bushes, or among rank meadow-sweet, cow-parsnip and nettles; those which I have examined were composed of fine round grass-stalks and lined with horsehair. The 5–7 eggs are much whiter in their ground-colour than those of the Reed-Warbler, with spots and blotches of olive-brown and violet-grey: measurements ·73 by ·55 in. Only one brood is reared in the season, but if the nest be taken, another is soon built, and fresh eggs have been found in the beginning of July. The male bird is often conspicuous at some distance from the nest; not skulking like the Reed-Warbler, but boldly pouring out a song far more melodious and imitative than that of its congeners. The food is similar to that of the Reed-Warbler.

The adult is olive-brown above, with a faint buffish-white streak over the eye; under parts white, tinged with sulphur-buff; wing-feathers olive-brown, tipped and margined with pale-buff; bill horn-brown above, paler below; legs and feet brownish flesh-colour. Length 5·25 in.; wing to the end of the 3rd and longest primary 2·7 in.: longer than in the Reed-Warbler. In fresh and fully moulted birds the 2nd quill infinitesimally exceeds the 4th: the reverse being the case with the Reed-Warbler.

THE GREAT REED-WARBLER.

ACROCEPHALUS TURDOIDES (Meyer).

The Great Reed-Warbler is another migratory species which, like the Icterine Warbler, is so common on the Continent that it is a marvel its visits to our shores are so few and far between. It is not a bird likely to escape notice: on the contrary, its powerful chattering song and large size would at any time attract attention; yet the fact remains that it has been very rarely obtained in England. The first on record was obtained near Newcastle on May 28th 1847 by Thos. Robson (afterwards well known as a collector at Ortakoi, near Constantinople); three are stated—though on the authority of a dealer whose traffic with Holland was notorious—to have been obtained in Essex and Kent about 1853; Mr. Goodchild informs me that an example shot near Sittingbourne is in the collection of Mr. G. Thomas; Mr. W. O. Hammond shot one near Wingham, Kent, on September 14th 1881; and one was obtained near Ringwood, Hampshire, on June 3rd 1884. Statements as to the finding of eggs supposed to belong to the bird are not wanting, but none of them are authenticated. In Yarrell's 'British Birds,' until the 4th Edition, this species was called the Thrush-like

Warbler; and by some authors it is inappropriately termed the Great *Sedge*-Warbler.

The Great Reed-Warbler is only a rare migrant as far as the lower portion of Sweden, while the islands at the mouth of the Gulf of Riga appear to be its northern limit, but in suitable localities south of the Baltic it is abundant in summer throughout Europe; also occurring on the Caspian and in Turkestan. In Morocco and Algeria it is to a great extent resident; its winter migrations extending almost to the extreme south of Africa. In Egypt, and eastward to India, its line is crossed by that of *A. stentoreus*, a close ally. The Great Reed-Warbler nests annually as near to us as Calais, and is quite common in Belgium and Holland.

In the breeding-season this species may be looked for among tall reeds and bulrushes, whether on the banks of streams and lakes, or on small ponds. The nest, seldom finished before the end of May, is a compact cup-shaped structure, some five inches deep, composed of dry reeds and grass, with a lining of the finer portions and the flowers of the same; the whole being closely bound to several upright reed-stems, or sometimes willow-twigs. The 4–5, often 6 eggs, are pale greenish-blue, blotched and speckled with ash-grey, russet-brown and dark olive: measurements ·9 by ·65 in. Only one brood is reared during the season, and by the beginning of September the southward migration has taken place. In its habits the bird is generally bold, and it is conspicuous, as it flits from one clump of reeds to another, or sits high upon one of the upper stems, uttering its loud harsh song, *karra-karra-karra*, *karee-karee-karee*, *charra-charra-charra*; it has also a croaking note when alarmed. It sings from early morning till late at night. Its food consists principally of insects and their larvæ, especially reed-beetles (*Donacia*); but in autumn it is said to eat elder-berries, &c.

The adult male has a dull whitish streak from the nostrils over each eye; the upper parts are warm olive-brown, with paler tips and margins to the feathers of the wings and the graduated tail; under parts warm buff, whiter on the throat and belly; bill brown, yellowish at the base; inside of the mouth orange-yellow; irides brown; legs pale horn-colour. Length 7·8 in.; wing to the tip of the 3rd and longest quill (the first or bastard being very small) 3·75 in. The female is slightly smaller. The young are more fulvous on the under parts, and are slightly striated on the sides of the neck and throat.

THE SEDGE-WARBLER.

ACROCEPHALUS PHRAGMÍTIS (Bechstein).

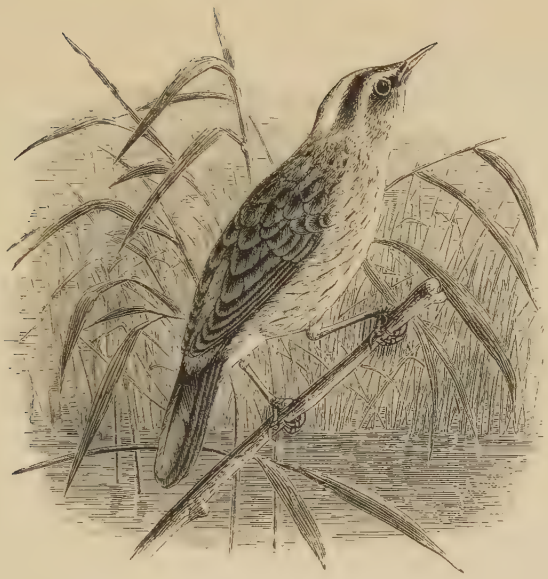
The Sedge-Warbler or Sedge-bird arrives in our islands during the latter half of April, and from that time it is the most abundant and generally distributed member of the genus until the latter part of September; while occasionally examples have been observed late in October and even in winter. It breeds throughout the mainland of Great Britain, although somewhat locally in the extreme north, and exceptionally in the Isle of Skye; while it occurs in Barra, Outer Hebrides; breeds increasingly in the Orkneys; but is not yet recorded from the Shetlands. To Ireland it is a regular and widely-distributed visitor in summer, and is frequently killed by striking against the lighthouses.

In Norway the Sedge-Warbler is found as far north as lat. 70°; and eastward, it can be traced across Sweden, North Russia, and Siberia to lat. 67° in the valley of the Yenesei. Southward, its breeding-range extends to the Altai, Western Turkestan, Palestine, Greece, and the central part of Italy; but in Sicily and the southern part of the Mediterranean basin westward to Spain it is principally known as a migrant. In the latter country I obtained examples in spring and autumn, and, although not found breeding, I have adults shot at Málaga on July 25th. Throughout the rest of Europe this species is tolerably abundant in suitable situations, especially in

the north, although sometimes unaccountably local. In winter it migrates as far as South Africa.

While partial to the banks of streams, lakes and ponds, where rushes and osiers abound, the Sedge-Warbler is by no means restricted to such, or even to moist situations; indeed it may often be found among copses and hedge-rows far from water. The nest is never suspended, like that of the Reed-Warbler, but is concealed among the lower branches of a shrub, or in the rank herbage by some stream or ditch, or even in a mossy hollow in the ground. Mr. A. H. Evans and I found one in the middle of a gooseberry bush in a garden by Hickling Broad; and Mr. M. Browne has recorded another which was placed quite ten feet up, at the top of a 'bullfinch' hedge, in Leicestershire. The foundation of moss is surmounted by grass and coarse bents, with a slight lining of horse-hair and seed-tufts of plants, and occasionally feathers. The 5–6 eggs are of a yellowish clay-colour, clouded or mottled with a brownish-shade, and often streaked and scrolled at the larger end with black hair-lines (much like those of the Yellow Wagtail): measurements ·68 by ·52 in. The young are hatched early in June. Aquatic insects and their larvæ, small slugs and worms, form the principal food of the Sedge-Warbler; but in autumn, like its congeners, it appears to be partial to elder-berries. Its babbling notes, *cheep, cheep, chissock cheep*, are loud and merry, though somewhat harsh (for which reason the bird is known as the 'Chat' on the Thames); while in the summer it sings day and night, being more often heard than seen; it is also a great imitator.

The adult male in spring has the lores and ear-coverts brown, surmounted by a broad yellowish-white streak above each eye; crown streaked with dark brown on a paler ground, forming a sort of cap; neck, back and wing-coverts reddish-brown clouded with darker brown; rump and tail-coverts tawny brown; tail dark brown, with paler edges; wings nearly the same; chin and throat white; breast and under parts buff; bill dark brown above, lighter below; legs and feet pale brown. Length 5 in.; wing to the end of the 3rd and slightly longest primary 2·5 in.; the bastard primary being very small. The latter character serves to distinguish the Sedge-Warbler from the Moustached Warbler (*A. melanopogon*), which is found in the south of Europe, and is similar in general appearance, but has a long bastard primary. The female Sedge-Warbler is less rufous on the rump, and is generally of a duller brown than the male. The young are distinctly spotted with pale brown upon the throat and upper part of the breast.



THE AQUATIC WARBLER.

ACROCEPHALUS AQUÁTICUS (J. F. Gmelin).

Owing to the similarity of the Aquatic Warbler to the preceding species, all the earlier examples obtained in England appear to have been originally overlooked. Professor Newton was the first to recognize a specimen in the collection of Mr. W. Borrer, who said that it had been shot on October 19th 1853, while creeping about among the grass and reeds in an old brick-pit near Hove, Sussex. This example having been exhibited before the Zoological Society (P. Z. S. 1866, p. 210), it was subsequently examined by Mr. Harting, who announced (Ibis 1867, p. 469) that he also possessed an Aquatic Warbler, obtained near Loughborough, in Leicestershire, in the summer of 1864, and forwarded to him by a friend, under the impression that it was a Grasshopper-Warbler. In February 1871, Mr. J. H. Gurney detected in the Museum at Dover a third example, which the Curator, the late Mr. C. Gordon, stated that he had shot near that town. Mr. Gurney has further pointed out that the bird figured as a Sedge-Warbler in Hunt's 'British Ornithology' was undoubtedly an Aquatic Warbler, in all probability obtained in Norfolk about the year 1815. Lastly, an example was shot at Blakeney, Norfolk, on September 8th 1896. The conspicuous buff

streak down the middle of the crown in the Aquatic Warbler is an unfailing mark of distinction between this species and the Sedge-Warbler.

The Aquatic Warbler seldom visits Heligoland; though it breeds sparingly in the southern part of Denmark, Schleswig-Holstein, and on the southern side of the Baltic. In Holland and Belgium it is of rare occurrence; but in France it is found annually in the departments of Somme and Nord. In the Brenne and beyond the Loire it arrives about the third week in April to breed; while further south, in the Camargue and similar marshy districts, it is not uncommon. Eastward, it is fairly distributed throughout Germany, becoming abundant in Silesia as well as in some parts of Poland, and only less so in Austria-Hungary. It breeds in many parts of Italy, Sicily and Sardinia; but in the Spanish Peninsula I have obtained it only in September. In North Africa it is probably resident. In the eastern portion of the basin of the Mediterranean it appears to be merely a migrant or a winter-visitor; and the marshes of the Southern Ural form its boundary in that direction.

According to Naumann, the nest is placed in more open localities than that of the Sedge-Warbler, and generally about a foot from the ground, in a bunch of sedge, or amongst dwarf willow-growth, but never among reeds overhanging the water. It is similar to that of the Sedge-Warbler, and the eggs, 4–5 in number, are slightly less yellow in their ground-colour than those of that bird: measurements ·65 by ·51 in. Breeding commences in the middle of May. In its habits this species is remarkably shy, concealing itself on the least alarm and running like a mouse along a branch or on the ground. Its food consists of insects. The song, uttered from the end of April to July, is shorter and less varied than that of the Sedge-Warbler.

In the adult the forehead is rufous-buff; the lores and ear-coverts are pale brown, surmounted by a buff stripe over and behind each eye; above this, on each side, is a broad blackish stripe, followed by a conspicuous buff streak along the middle of the crown; nape and back tawny-brown striped with black; rump rufous-brown, with black streaks; tail-feathers brown, darker along the shafts; under parts yellowish-buff, darker on the flanks, which, with the neck and throat, are more or less striated; bill brown above, yellowish below; legs and feet yellowish-brown. In the autumn the buff tint becomes more intense. Length 4·9 in.; wing to the tip of the 3rd and longest primary 2·4 in., the bastard quill being very small.

THE GRASSHOPPER-WARBLER.

LOCUSTÉLLA NÆVIA (Boddaert).

This Warbler owes its trivial name to a rapid trilling song, which somewhat resembles the chirping of the grasshopper or the mole-cricket; but in many parts of England it is also known as the 'Reeler,' from a fancied similarity to the noise of the old-fashioned implement used by wool-spinners, or of the running-out of the line on a fisherman's reel. The bird arrives from the south about the second half of April, departing in September; and between those months it is of tolerably general distribution in suitable localities throughout England and Wales; being often supposed to be rarer than is really the case, owing to its skulking habits. Fens and partially reclaimed land are favourite situations, but heaths, commons, and tangled hedge-rows are also frequented, while the moist shoulders or 'dips,' near the summits of some of our highest hills, such as the Cheviots, are situations to which it seems to be partial; in fact Northumberland and Durham are two of the counties in which it is abundant in some summers. In Scotland we trace it, in gradually diminishing numbers, as far as Arisaig, below the Sound of Sleat, and, across that water, to the Isle of Skye. It is found almost all over Ireland.

The Grasshopper-Warbler is only a rare visitor to Heligoland, and is hardly known to cross the Baltic, but in Russia it is found as far north as St. Petersburg. Over the greater part of Europe it seems to be generally distributed, although seldom common; but it

is not improbable that it may often be overlooked. In Italy it is said to be rare; but in the south of Spain I found it fairly abundant in autumn and winter; and in the latter season it appears to visit Morocco and Algeria. Eastward, it can be traced in Europe to Transylvania, and the south-east of Russia; perhaps to the Altai, in Siberia; but beyond the Ural Mountains its line is crossed by allied species:—*L. lanceolata* in Siberia, and *L. straminea* in Turkestan.

The nest may be looked for in clumps of dry fen-grass, the bottoms and sides of thick hedge-rows, rank herbage on hill-sides, or in young plantations. When flushed from her nest the bird flies off with a very peculiar drooping movement of her outspread tail, and, if not pursued, she will usually not fly far. On her return she will sometimes come stealing back again with the mouse-like action so often insisted upon as a characteristic, but neither Mr. A. H. Evans nor I have noticed this performance on her leaving the nest. This, a compact and rather deep structure, is principally composed of moss and dry grass, with a finer lining of the latter; the 5–7 eggs are pale pinkish-white, freckled and zoned with darker reddish-brown: measurements ·7 by ·54 in. Two broods are sometimes reared in the season; the first eggs being laid about the third week in May; while they have been taken fresh in the first week of August. The song, already described, may be heard to advantage on a still summer's evening, or during the two or three hours after dawn; the bird perching on the topmost spray of a bush or the point of a tall reed to utter it, but taking refuge in the herbage on the smallest alarm, although perhaps only for a moment. The alarm-note is a sharp *tic, tic, tac*. The food consists of dragon-flies—taken on the wing—and other insects, with their larvæ. This species appears to migrate in large parties, for Booth observed several hundreds at daybreak early in May, all congregated on a small patch of some dozen or twenty acres of mud-banks covered with marsh-samphire and other weeds, near Rye in Sussex, and evidently making their way inland.

The adult is greenish-brown above, with darker striations down the centre of each feather; quills and tail brown, with faint bars on the latter; under parts pale brown, with darker spots on the neck and breast; under tail-coverts very long, and streaked along the shafts with dark brown; bill brown; legs and feet pale yellowish-brown. Length 5·4 in.; wing to tip of 3rd and longest quill 2·4 in. The sexes are alike in plumage. The young are more suffused with buff on the under parts, and have larger bastard primaries.

SAVI'S WARBLER.

LOCUSTELLA LUSCINIOÍDES (Savi).

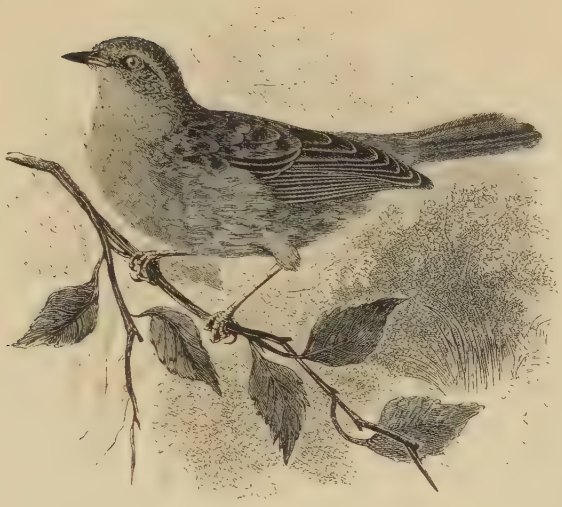
As remarked by Professor Newton, in the best account extant of Savi's Warbler (Yarrell's British Birds, 4th Ed., i. p. 389), there can be little doubt that this bird was a regular (though never a very abundant) summer-visitant to England, until the drainage of the fens and meres of the Eastern Counties unfitted large districts for its habitation. The first example ever brought to the notice of naturalists—still at the Norwich Museum—was shot in Norfolk during the month of May, in the early part of this century; but having been submitted to Temminck it was pronounced by him to be a variety of the Reed-Warbler; while some subsequent confusion in his mind was, doubtless, the cause of his wholly erroneous statement that *Cetti's* Warbler (a very different species, with only *ten* tail-feathers) had been killed in England. Not until 1824 was the specific distinctness of Savi's Warbler recognized by the Italian ornithologist after whom it is named. In after years about six examples of the bird, and one or two of its nests, were taken in Norfolk; while in Cambridgeshire and Huntingdonshire a larger number of both were obtained in fens which are, at the present day, with two exceptions, completely drained. The last British specimen was obtained at Surlingham, Norfolk, in June 1856; and none are known to be in existence except those from the Eastern Counties,

where the bird used to arrive about the middle of April, and at its first coming was not shy. There is some evidence that this species was noticed in May 1897 in the Humber District (Cordeaux), as well as near Olney, Bucks.

In Holland, Savi's Warbler has become rarer of late years, owing to drainage; so that at the present time it appears to be very local, and almost restricted to the reed-beds of the Maas district. It is also found in summer in similar localities in the Camargue, at the mouth of the Rhone; in some parts of Andalucía in Spain; the swamps of Massaciuccoli in Tuscany; Austria-Hungary; the Balkan States; Southern Russia as far as the Caspian; and Western Turkestan. It has been obtained in Cyprus, and once in Palestine; while it appears to pass the winter in Egypt, where Capt. Shelley found it tolerably abundant and generally distributed, frequenting the most luxuriant growth in the cornfields, as well as the reedy marshes. Canon Tristram observed it in the oases of the Sahara as far south as 32° N. lat.; while northward, in Algeria, Mr. Salvin met with it breeding in the marshes of Zana; and it has occurred in Morocco. In the islands of the Mediterranean it appears to be rare, even on migration.

The deep cup-shaped nest, placed in sedges and reed-beds, or in tufts of spiky rushes which flourish in wet ground, is composed of interwoven sedge-blades, and may be compared with that of a Crake in miniature. The 4–6 eggs are white or pale buff in ground-colour, thickly freckled, and generally girdled, with ashy-brown and violet-grey spots: measurements ·78 by ·57 in. In Andalucía nesting begins early in May, but in Galizia and Holland not until the end of that month; both sexes incubating. Count Wodzicki says that in the breeding-season the male is excitable and quarrelsome, displaying also much curiosity on the appearance of an intruder; he sings all day in calm clear weather, but seldom at night, and generally at the top of some commanding reed. From its monotonous note this Warbler was formerly known to our fen-men by the names of 'red craking reed-wren' and 'reel-bird'; while in Holland it is called *Sworr* and in Germany *Schirrvogel*. The call-note is a short *krr*. The food consists of insects and their larvæ.

In the adult the upper parts are reddish-brown; the fan-shaped tail (of 12 broad feathers) shows in certain lights some faint transverse bars; throat and centre of abdomen white; upper breast, flanks, and under tail-coverts buff; bill brown above, paler below; legs and feet pale brown. Length 5·7 in.; wing to the tip of the 2nd and longest primary 2·6 in. The young are slightly paler on the under parts.



THE HEDGE-SPARROW.

ACCÉNTOR MODULÁRIS (Linnæus).

The Hedge-Sparrow is resident and generally distributed throughout the British Islands: the exceptions being the bleakest of the Outer Hebrides and the Shetlands, for in the Orkneys it has bred since 1887, and is increasing. In Sutherland and Caithness it is extending its range wherever plantations are springing up; while in winter it comes nearer to houses, where a more plentiful supply of food is attainable. On the east coast it is a regular migrant, extraordinary numbers sometimes arriving on the coast of Lincolnshire and Yorkshire in September and October; while return parties have been noticed in spring. The Hedge-Sparrow is known by a variety of names, such as 'Dunnock,' 'Dykie,' 'Smokie,' and 'Shuffle-wing' (the last from its peculiar action). Chaucer called it 'Haysogge,' and to this day it is known in Surrey as 'Isaac'; while some well-meaning writers name it the Hedge-Accentor, to show that it is no relative of the obnoxious House-Sparrow.

In Norway the Hedge-Sparrow breeds as far north as the limit of forest growth, and eastward it occurs sparingly up to 60° N. lat. in the Ural Mountains; but from the greater part of these northern regions it migrates southwards in autumn; large numbers passing by Heligoland. Throughout Europe, south of the Baltic, it is

generally distributed in summer down to the northern districts of Spain, and Mr. Tait found it nesting in the valley of the Douro, in Portugal; but in Southern Spain its familiar eggs have not yet been seen. In the latter country, and, in fact, along the northern shores of the Mediterranean, it is a winter-visitor; wandering to the islands and to Algeria; Canon Tristram says that it is resident in the Lebanon; and Von Heuglin found it in winter in Arabia Petræa. Its south-eastern breeding limit appears to be the Caucasus.

The nest is seldom placed far from the ground, and is generally in hedge-rows and in tangled bushes, or among heaps of dry sticks; less frequently in ivy. In a wet cave on Ailsa Craig the late R. Gray found one placed on a ledge of rock, at the root of some hart's-tongue fern. Roots and green moss, with hair and wool for the lining, are the materials employed; and the 4–6 blue eggs, measuring about ·78 by ·56 in., may frequently be found early in March; two, and sometimes three broods being reared in the season. An old and popular belief, alluded to by Chaucer, and, long after, by Shakespeare, is that the Hedge-Sparrow is usually selected by the Cuckoo as a foster-parent for its young; while the observations of Jenner and others on the behaviour of nestling Cuckoos, have tended to strengthen the idea, for, owing to the situations adopted, the nests of the Hedge-Sparrow are easily found and watched; yet it may be doubted whether the nests of the Meadow-Pipit and Pied Wagtail are not greater favourites. The food consists of spiders, small beetles and other insects, worms, seeds, and, in severe weather, any crumbs and sweepings obtainable in the neighbourhood of habitations. The short song of the Hedge-Sparrow is commenced, even in our islands, as early as February, and in the south of Europe it may be heard all through the winter.

The adult male has the head and nape slate-grey, streaked with brown; ear-coverts brown; back and wings rufous-brown, with umber streaks; the lower wing-coverts with buffish-white tips, which form a narrow but distinct bar; quills and tail dusky brown; chin, throat and upper breast slate-grey; belly dull white; sides and flanks pale reddish-brown, with dark streaks; bill brown, lighter at the base; legs and feet yellowish-brown. Length, 5·5 in.; wing to the tips of 3rd–5th and longest primaries 2·75 in. The female is somewhat less in size and duller in colour, and the streaks about the head, neck and shoulders are smaller and more numerous. The young have no slate-grey on the head and throat, and are browner and more spotted than the adults.

THE ALPINE ACCENTOR.

ACCENTOR COLLÁRIS (Scopoli).

As might be expected, this mountain-loving species is only an exceptional visitor to England. Its first recorded occurrence was at Cambridge, where two of these birds were noticed climbing about the buildings or feeding on the grass-plots in King's College, one of them being shot on November 22nd 1822; previously, however, an example had been obtained near Walthamstow, Essex, by Mr. Pamplin, in August 1817. Subsequently several birds have been taken—or their occurrence recorded by competent observers: one near Lowestoft, Suffolk; one at Wells, Somerset; four in South Devon; one near Cheltenham; one near Scarborough; two near Lewes, Sussex; and one on the Llanberis side of Snowdon, on August 20th 1870. The last bird was exceedingly tame, hopping about a small stone-enclosure, where I watched it as long as I could without attracting attention.

As a wanderer the Alpine Accentor has occurred in Heligoland, Northern Germany, Belgium, and the north of France, especially Normandy; while along the cliffs of the Loire it is to be found with tolerable regularity in autumn (Bureau). Its home is, however, in the mountains of Savoy and the ranges which, under various names, stretch from the Alps to the Carpathians inclusive; the Apennines; Sicily; Sardinia; the Pyrenees and their Cantabrian continuation; the Guadarrama and other Spanish ranges down to the Sierra Nevada; Greece; Asia Minor; the Caucasus, and Northern Persia. Eastward, the distribution of this bird can with difficulty be traced,

owing to a chain of forms of questionable distinctness, leading to well-defined species in those highlands of Asia which form the head-quarters of the Old-World genus *Accentor*.

The nest, built towards the end of May, is placed on the ground, among crevices of rocks, or under some small bush; it is round, compact, and somewhat shallow, the materials consisting of dry grass-stems, with a slight lining of fine moss, and sometimes a few feathers. The 4–5 eggs are of a pale blue, like those of the other members of the genus: measurements ·95 in. by ·68 in. In summer the bird is to be found up to the edge of the snow-line, and seldom below the altitude of 4,000 feet: while on the Tatra Mountains of Galizia, Count Wodzicki met with breeding colonies of from twenty to forty pairs; an unusual gregariousness, though in autumn small flocks collect. In summer this species feeds on beetles and other insects, while in autumn it gets as fat as a Bunting on the seeds of Alpine plants; nor does it leave the mountains until snow covers the seeds, and forces it downwards to the villages and even to the coast. It creeps about in the same sly way as our Hedge-Sparrow does; like that bird, it undoubtedly *hops*, and does not run, as some writers have asserted; nor does it duck its head and jerk up its tail every time it utters its note, after the manner of the Chats. Seebohm saw it at least fifty times without perceiving the habit alluded to, and the same is my own experience. He describes the song as a rich liquid *chich*, *ich*, *ich*, *ich*; the call-note is a plaintive *tri*, *tri*, *tri*.

The adult has the head, nape, and ear-coverts greyish-brown with darker streaks; back rather browner, with broader streaks down the centre of each feather; wing-coverts dark brown, tipped with white spots, which form a double bar; secondaries margined and tipped with rufous; primaries dark brown; tail dark brown, with buffish-white tips, which are larger on the inner webs and almost absent on the central feathers; chin and throat white, spotted with black; breast and centre of abdomen greyish-brown; flanks mottled with dark chestnut; bill black above, yellowish at the base; legs and feet pinkish-yellow, in life. The sexes are alike in plumage. The young bird has the feathers of the back edged with rufous; there is no mottled white patch on the throat; and the under parts are of a very dusky yellowish-brown. Length 7 in.; wing to the tip of the 3rd and longest primary 4·1 in.; the bastard primary is comparatively small.

THE DIPPER.

CINCLUS AQUÁTICUS, Bechstein.

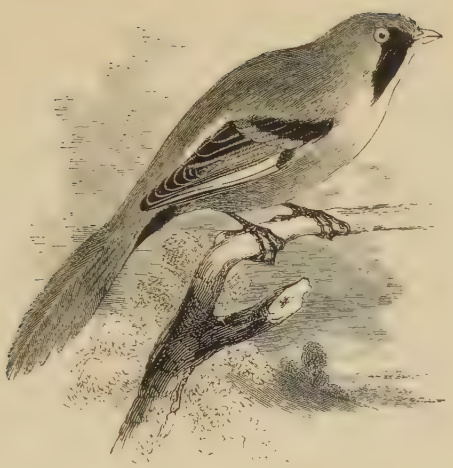
It may fairly be said that the Dipper, Water-Ouzel or "Water-Crow" is found in the British Islands wherever there are rapidly running rivers, or brooks rippling over rocks and stones, while, as a wanderer, it occurs on the margins of more sluggish streams; the mouths of tidal rivers, and the sea-shore being favourite resorts in winter. Localities suitable to its habits present themselves in Cornwall, Devon and Somerset (where the bird is known as the 'Water-Colly' *i.e.*, Water-Blackbird), Wales and the bordering counties, and, northwards, to Scotland, where every river or burn of any consequence is frequented by several pairs; the range extending to the Outer Hebrides, and occasionally to the Orkneys. In Ireland the species is resident in the mountainous districts and some of the lower valleys.

Our Dipper is naturally of rare occurrence in the flat eastern counties of England; but these are sometimes visited in winter by the Black-bellied Dipper, *Cinclus melanogaster*, Brehm; a form which some naturalists consider entitled to specific rank. This has little or no chestnut colour in the breast-band, and is found in Scandinavia, and Northern Russia; visiting Denmark, Heligoland, Northern Germany, and Holland. After examining a considerable number of Dippers, including the fine series in the

British Museum, it appears to me that *C. melanogaster* is merely a dark form which inhabits the northern countries of Europe, as well as the higher mountain regions of the south. Even in Derbyshire the Dippers from the Peak district at 1,500 feet are darker than birds from 1,000 feet lower down; and examples from the *upper portions* of the narrow valleys of the Pyrenees above Luz, as well as the lofty Cantabrian Mountains, in North-western Spain, are indistinguishable from Scandinavian specimens. At lower elevations, and also on the river Genil near Granada, the Dippers have a broad chestnut band, and belong to a race intermediate between our British form and another—paler on the back—called by separatists *C. albicollis*; the last-named inhabiting the Alps, the Carpathians, Italy and Greece. From the Caucasus and Asia Minor eastward to Tibet, intergraduating races lead to the browner-backed *C. cashmiriensis*; while in the Atlas Mountains is found yet another form, distinguished by Canon Tristram as *C. minor*. Judging from the above I still (1897) consider it advisable to treat both the forms of Dipper which occur in our islands under one heading, while admitting that the extremes of each race are recognizable.

The nest is a large oval ball of moss, grass or leaves, and generally lined with dead leaves; the entrance being low down in the side. It is placed in a hole under a bridge, in the wall of a mill-dam, in a bank, or on a ledge of rock, often behind a cascade of water; sometimes in the boughs of low trees overhanging a river. The 4–6 eggs are of a dull white: measurements 1 in. by ·75 in. Fully fledged young have been found on March 21st; and not only are two and even three broods reared in the season, but a second or even third clutch of eggs is occasionally deposited in the same nest. The song, begun in autumn, may frequently be heard throughout the winter, and always early in spring. The food consists of soft-shelled molluscs, spiders, aquatic beetles and other insects, with their larvæ, many of which are known to be destructive to the spawn of trout and salmon. The bird sinks in a peculiar way, without taking a "header"; in pursuit of its prey, it employs both legs and wings, using the latter like oars, and the young are able to swim freely as soon as they leave the nest.

Adult: head and nape umber-brown; back and tail-coverts slate-grey, mottled with brown; tail and wing-feathers dark brown; chin, throat and upper breast white; lower breast dark chestnut-brown, passing into black on the flanks and lower belly; bill brownish-black; legs and feet brown. Length 7 in.; wing 3·6 in. The sexes are alike in plumage. The young are greyish-brown above, and have no chestnut-brown on the under parts.



THE BEARDED TITMOUSE.

PANÚRUS BIÁRMICUS (Linnæus).

The drainage of the reedy fens and meres has destroyed the former breeding-grounds of the Bearded Tit in Sussex, Kent, Essex, Cambridgeshire, Huntingdonshire and Lincolnshire; perhaps—aided by the greed of collectors—even in Suffolk. The places where the bird can now be observed in the nesting-season are mostly in the Broad-district of Norfolk, with, perhaps, one locality in Devonshire. As a visitor it has twice occurred in Cornwall; while it has been recorded in Dorset, and along the Thames valley to Gloucestershire; as well as in Nottinghamshire and Staffordshire. It is a resident species in England, seldom wandering far from its usual haunts; and if our indigenous birds should be exterminated, there is little hope of their place being supplied by migrants from the Continent.

An exceptional wanderer to Heligoland, and rare in Holstein and Germany east of the Moselle, the Bearded Tit becomes comparatively common in the great reed-beds of Holland; visiting Belgium in autumn and Luxembourg in winter, to escape the severity of the weather. In France it is principally found in the valley and the delta of the Rhone, and in the marshes below Narbonne. In Spain I observed it in considerable numbers on the Albufera lake, near Valencia, where it is resident; as it is also in the marshes of Italy and Sicily. It is found in suitable situations in Poland, Austro-

Hungary, South Russia—especially in the marshes of the Black and Caspian Seas—Turkestan, Yarkand and Southern Siberia : the coloration of specimens becoming gradually paler from England eastward to Central Asia. The bird has also been observed in Albania, Greece and Asia Minor.

On the Norfolk Broads the 'Reed Pheasant,' as it is called, often begins to lay early in April ; the nest being placed near the water, in sedge, crushed-down reeds, or aquatic plants, but never suspended from the stems. It is composed of flat grass-blades, sedges, and dead flags, with a lining of the flower of the reed. The 5–7 eggs are shining creamy-white, sparingly streaked with short wavy lines of reddish-brown : average measurements ·7 by ·55 in. Sometimes two hens occupy the same nest, each laying an egg daily until a total of 10 is reached. Two broods are produced in the season, fresh eggs being obtainable up to the early part of August. The note is a clear, ringing *ping*, *ping* ; and when the nest is approached a plaintive *ee-ar*, *ee-ar* is uttered. Even in the winter the birds are lively and musical, and at that season they may be seen in flocks of forty or fifty together ; often roving from the frozen inland waters to those which are kept open by the influence of the tide. The food consists largely of the seed of the reed in winter ; but in summer the crops of some individuals have been found closely packed with such small shell-bearing molluscs as *Succinea amphibia*. In its digestive organs and other points of internal structure this bird shows no real affinity to the Tits, and some writers have advocated its relationship to the Finches ; it is, however, as Professor Newton remarks, a perfectly distinct form, with no very near relations, and quite entitled to be regarded as the representative of a separate family, the *Panuridæ*.

The adult male has the crown bluish-grey ; a black loral patch descends diagonally from below the eye and terminates in a pointed moustache ; nape, back and rump orange-tawny ; secondaries longitudinally striped with buffish-white, black, and rufous ; primaries brown with white outer margins ; tail mostly rufous ; chin and throat greyish-white turning into greyish-pink on the breast ; flanks orange-tawny ; under tail-coverts jet black ; bill yellow ; legs and feet black. Length 6·75 in. ; wing 2·25 in. The female has the head brownish-fawn, and no black on the lores, cheeks, or under tail-coverts ; the back is somewhat streaked, but in other respects she is merely duller than the male. The young bird is like the female, but the crown of the head and the middle of the back are streaked with black.

THE LONG-TAILED TITMOUSE.

ACRÉDULA CAUDÁTA (Linnæus).

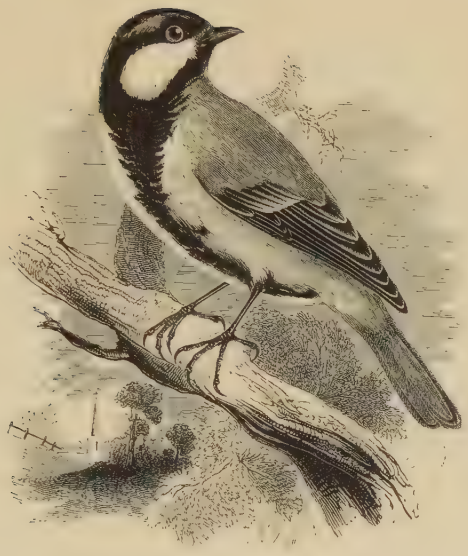
The Long-tailed Titmouse is one of those species which exhibit a strong tendency to variation under climatic or other conditions; and ornithologists must exercise their individual discretion in classing each form as a race, a sub-species, or a completely segregated species. In the adult bird found in Scandinavia, Northern Germany, Austria and Russia—extending across Siberia to Japan—the head is white; the purity and extent of that colour attaining the maximum in the far north. This is the true *A. caudata*, as restricted by some authors, which has been obtained once in Northumberland, and which seems to have occurred in some of the Scottish forests; while intergradations between this and the next form have been observed. In the Netherlands, Germany west of Cassel, and part of France, *A. caudata* meets and interbreeds with the form which represents it generally in the British Islands, and which is distinguished by its duller tints as well as by having the white on the head restricted to the crown. If separated specifically, this dull form is *A. rosea*. In the south of France and the north of Italy, the latter meets and intergrades with the greyer-backed *A. irbii*, which becomes the representative in Sicily and Spain. Although it is difficult to

separate any but adult examples of these two races, Herr Lorenz has not hesitated to describe *A. irbii* var. *caucasica*! Space fails for the enumeration of the Siberian, Chinese and Japanese forms of Long-tailed Tit upon which specific names have been conferred; but I may observe that from the Balkan Peninsula to Persia occur two distinct species, *A. tephronota* and *A. macedonica*, in both of which there is a black patch on the throat.

Our form of the Long-tailed Tit is resident and tolerably abundant throughout England and Wales, wherever the localities are suited to its habits; and, although somewhat more partial in its distribution in Scotland, it is by no means uncommon there; ranging as far west as Skye, and wandering to the Shetlands. In Ireland it is resident and common.

The nest is oval, with a small hole in the upper part of the side, and is composed of silvery lichens, green moss, wool and spiders' webs, felted together, and lined with a profusion of feathers. Its form has procured for its architect the name of 'Bottle-Tit'; while, owing to the lining, the bird is frequently called the 'Feather-poke.' The nest is often placed in the middle of a thick whitethorn, holly, or furze-bush; sometimes in ivy, or high up in the lichen-covered branches of a tree; occasionally in tangled masses of brambles and creepers. The eggs, usually laid about the middle of April, are white, generally more or less speckled and streaked with light red, but sometimes merely suffused with that tint: measurements ·53 by ·42 in. In number they are usually from 7 to 10; but 16 young birds have been found in the same nest, without any evidence of their being the produce of more than one female. When sitting, the long tail of the bird is turned over its back, and often projects above its head through the entrance-hole. Two broods are often reared in the season, and subsequently the family may be seen flitting in single file from one hedge-row to another with a remarkably dipping motion. The usual note is a shrill *zee, zee, zee*. The food consists of insects and their larvæ.

Adult male (British): front and crown white, bordered on each side by a black line, running from the base of the bill over the eye to the nape and upper back, which are also black; scapulars and lower back dull rose; wings dark brown, margined with white on the secondaries; tail-feathers black, the three outer pairs broadly tipped and margined with white; cheeks and throat dull white; upper breast white with a few black streaks; belly and flanks dull rose; bill, legs and feet black. Length 5·5 in.; wing 2·45 in. The female has rather more black about the head; the young are duller in colour and have no rosy tint on the upper parts.



THE GREAT TITMOUSE.

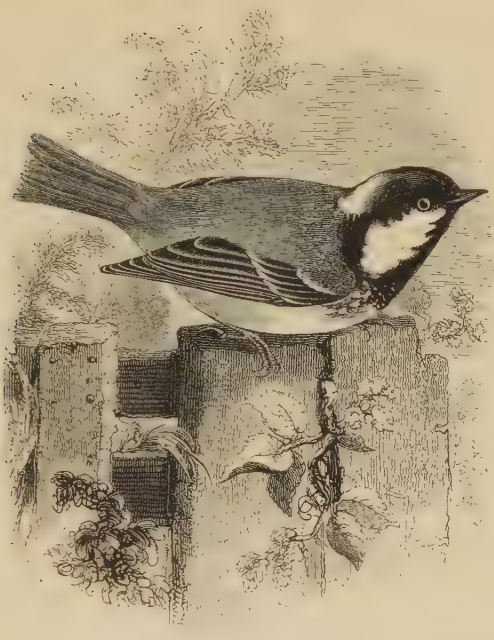
PARUS MAJOR, Linnæus.

This species, often called the Ox-eye, is resident and generally distributed in suitable localities throughout England and Wales, Ireland, and the greater part of Scotland; but in the northern and western portions of the latter it becomes uncommon; being only a rare visitant to the Isle of Skye, Sutherland, the Orkneys, and, perhaps, the Shetlands.

In the comparatively mild climate of Norway the Great Titmouse is found as far north as the Arctic circle; but in Russia it has not been recorded beyond lat. 64° N., while in the valley of the Yenesei Seebohm did not find it above 58° N. Eastward it is met with in the wooded districts of Siberia as far as Transbaikalia. In Mongolia, China and Japan, its representative is *P. minor*: slightly smaller, with the under parts buffish-white instead of yellow. Our species is common over the whole of Europe; being migratory in the more northern countries, but resident in the temperate and southern, down to the Mediterranean. In most of the islands of that sea it is also found, though seldom in Malta; it occurs in the Canaries, is resident throughout a great part of North Africa, and abounds in Asia Minor, Palestine and Persia.

The nest is often commenced in March, though usually in April; a hole in a tree or wall being commonly selected; but many curious situations are on record, such as the inside of a pump in constant use, a letter-box, a shelf in a three-cornered cupboard, or the interior of an inverted flower-pot; one of such, in the British Museum, containing *three* new nests! Sometimes the foundations of old abodes of other birds, as Crows, Rooks and Magpies, or squirrels' dreys, are utilized (but more frequently on the Continent than in this country). The structure consists of soft moss, surmounted by a warm bed of hair, fur, wool and feathers. The 6 and even 12 eggs are white, spotted and blotched with light red: measurements, ·7 by ·55 in. Two broods are produced in the season. The Great Titmouse may often be seen roving from tree to tree in our gardens and sheltered districts; sometimes hanging by its strong claws with its back downwards, while searching for insects, its principal food. No doubt the bird destroys buds; but in many cases these already contain grubs which would not only put a stop to the growth of the sprouts, but would inflict further damage upon the trees. It is fond of peas, while in the autumn and winter it cracks and eats nuts and hard seeds, but on the whole its predilections are decidedly for 'animal' food. In cold weather the lover of birds may enjoy watching the actions of this species and its kin, by suspending a piece of raw meat, a bone, or a lump of suet, from some bough or iron standard outside the windows. The Great Titmouse will attack small and weakly birds, splitting their skulls with its powerful beak in order to get at their brains; and it has even been known to serve a Bat in this manner. Its usual note in spring resembles the sound produced by sharpening a saw with a file, and may be heard at a considerable distance; its call-note is a low *zee*; and some individuals display great power of imitating other birds.

Adult male: crown, nape, and throat bluish-black; cheeks white; on the nape a small spot of whitish, which reaches the yellowish-olive of the mantle; wing-coverts bluish-grey, with white tips which form a bar; quills dark brown with paler margins; tail-feathers slate-grey, the outer pair tipped and margined with white; a black stripe from the throat to the vent; sides and flanks dull sulphur-yellow; bill black; legs and feet lead-coloured. Length 5·75 in.; wing to the tip of 4th and longest primary 2·85 in. The female is duller in colour than the male; the young bird has a tinge of yellow on the cheeks.



THE COAL-TITMOUSE.

PARUS ATER, Linnæus.

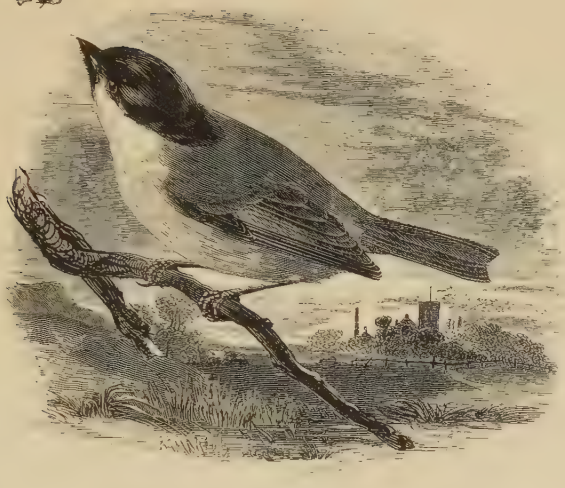
In the Coal-Titmouse, as in the Long-tailed Titmouse, there are gradual variations, the extremes of which become, in the opinion of some ornithologists, entitled to specific distinction. As *Parus britannicus*, Messrs. Sharpe and Dresser have separated our race from that of the Continent, because the upper back is olive-brown in the British bird, and slate-grey in the Continental form; but, while I admit that a difference in tint is often recognizable, there are intergradations, and these are even noticeable in specimens from some of the forests of Scotland, in which the bird is abundant. Examples from Norfolk—indistinguishable from those of the Continent—*may*, of course, be foreign immigrants; and so *may* the specimens in the British Museum, from Perthshire, which are identical with birds from the Vosges, although less purely grey than those from Japan. Against the migration-hypothesis must, however, be set the experience of Mr. Gurney and the late Mr. Booth, who never observed the Coal-Tit at sea off the east coast, nor received a wing of it out of numbers sent from the light-ships, as well as the fact

that it seldom visits Heligoland. I have therefore treated these forms as climatic races.

The Coal-Tit is a resident species in England, Wales and Ireland, and appears to have increased during the present century; although it is still, as a rule, less numerous than the Great and Blue Tits. In Scotland, on the contrary, it is the commonest of the family in the north, and is fairly distributed, except in the Outer Hebrides, Orkneys and Shetlands. On the Continent the greyer-backed race is found in summer as far north as lat. 65°, a partial migration taking place in winter; but in the central and southern portions of Europe the bird is generally distributed as a resident. In Algeria the representative is *P. ledouxi*, with yellow cheeks, nuchal spot and under parts—much like the young of our bird. In the mountains of Cyprus Dr. Guillemard obtained a form described by Mr. Dresser as *P. cypriotes* (Ibis 1888); distinguished by a tint on the back even browner than in British specimens, a nearly obsolete nuchal patch, and a greater amount of black on the throat. In the Caucasus occurs a larger form, *P. michalowskii*, intermediate in tint between that of our islands and the typical race of the Continent; and under various other names, according as the bird increases in brightness of colour and length of crest, the Coal-Tit is found across Asia to Kamchatka, China and Japan.

The nest, commenced in March or April, is placed in a hole in a tree, a crevice in a wall, a mouse's, mole's or rabbit's burrow in a bank or the level ground, foundations of crows' nests, &c.; while Bond found one on the branch of a fir-tree, close to the bole. Moss and wool, rabbits' fur, or deer's hair and feathers, are the materials; the 7–11 eggs being white, spotted with light red: measurements ·6 by ·45 in. The note is decidedly more shrill than that of its congeners. The young are fed largely upon green caterpillars, but besides these, insects, nuts and seeds are eaten.

Adult male: crown, nape, throat, and upper breast glossy blue-black, with a large white nuchal spot; cheeks and sides of the neck white; back grey, tinged with olive in most British specimens; rump brownish-fawn; quills ash-brown, with dull white margins to the secondaries; wing-coverts with white tips, which form two bars; tail ash-brown; breast dull white, passing into fawn on the belly and flanks; bill, legs and feet dark horn-colour. Length 4·25 in.; wing 2·4 in. Female: slightly duller in colour. Young: no gloss on the head; cheeks, nape-spot and under parts suffused with sulphur-yellow; upper feathers tinged with olive. The white patch on the nape readily distinguishes the Coal-Tit from the Marsh-Tit.



THE MARSH-TITMOUSE.

PARUS PALÚSTRIS, Linnæus.

The Marsh-Titmouse is another of our resident species ; but with the exception of the Crested Titmouse it is the least plentiful and the most local of the genus. Its name is somewhat misleading, for the bird may often be seen in orchards and gardens, and even in pine-woods ; but it is partial to the vicinity of rivers, and to the alders and pollarded willows which flourish on swampy ground. In England, and in suitable parts of Wales, it is fairly common ; but in Scotland it is local, and was not known to breed to the north of the valley of the Forth, until in 1893, Mr. W. Evans found it nesting in Strathspey. In Mull it was abundant in October 1878. In Ireland it is rare ; it has been recorded from cos. Antrim, Kildare, and Dublin.

British examples are somewhat browner on the upper parts and flanks than Continental specimens, and, according to Dr. Stejneger, they have also shorter tails. Nevertheless those ornithologists who have admitted the British Coal-Tit to be a distinct species, have not been equally courageous as regards the British Marsh-Tit, although the differences between the dull insular and the bright Continental forms are quite as marked. Dr. Stejneger has emphasized his opinion of this omission by naming our bird *P. palustris dresseri* ; and, as I agree with him that it is inconsistent to recognize specific distinctness in the former case and to reject it in the latter, I have

treated the variations in both as merely those of race. In Scandinavia north of lat. 61°, Northern Russia, the Alps and the Carpathians, the Continental form is mainly represented by a larger and still greyer sub-species, *P. borealis*, variations of which are found across Asia to Japan. The typical form is distributed throughout Central and most of Western Europe down to the Pyrenees; but in Portugal it has not yet been identified, and in Spain, I only observed it at Granáda and Córdova, as did the late Lord Lilford at Santander; while it is rare in Southern Italy and Greece. In the latter country, as well as in the rest of South-eastern Europe, Asia Minor, and Northern Persia, it is almost replaced by *P. lugubris*, a larger bird, with a dark brown head and a stout bill.

From the middle of April to May the Marsh-Titmouse makes its nest in holes in trees—especially willows and alders, in decayed stumps near the ground, or behind loose bark, or in burrows made by rats and mice in banks. The bird has been observed to hew out its own abode, carefully removing in its bill the chips of wood that would otherwise betray the site, and leaving a very narrow entrance, although the hole is often of considerable size inside. The nest itself is composed of moss, wool, rabbits' fur and hair felted together, and is often lined with willow-down; the 5–8 eggs are white, spotted with dull red—sometimes almost liver-colour: measurements ·61 by ·47 in. The alarm-note is a rapidly uttered *tay*, *tay*, *tay*, *tay*, much more metallic than in other species; the song being a simple *sis*, *sis*, *sis*, *see*. The food consists largely of insects, in pursuit of which the bird has been seen to thrust its bill under the scales of the rough bark of a Scotch fir, and to prize them off with a forcible jerk; in the autumn and winter however, seeds (especially those of the sun-flower), beech-mast and berries are consumed; the bird holding them in its claw like a parrot, while getting out the edible parts. Its habits during the breeding-season are more retiring than those of other Tits.

Adult: upper part of head and nape glossy black; cheeks dull white, turning to buff on the sides of the neck; back olive-brown, inclining to grey in Continental specimens; rump rather browner olive; quills and tail ash-brown with the outer margins paler; chin and throat black; remaining under parts dull white, turning to buff on the flanks; bill black; legs and feet lead-colour. Length 4·5 in.; wing to the tips of the 4th—5th, and longest quills 2·45 in. The sexes are alike in plumage; in the young the colours are duller and more olive-brown.

THE BLUE TITMOUSE.

PARUS CÆRÚLEUS, Linnæus.

The Blue Titmouse is one of the best known of British birds, and is generally distributed throughout the greater part of our islands. In Scotland, however, it does not appear to reach the Outer Hebrides, though found in Jura, Mull, &c.; while it is very local in the north-west, resident in Sutherland and Caithness, and only a wanderer to the Orkneys and Shetlands. In Ireland it is the commonest of the genus. In autumn considerable numbers of Blue and Great Tits arrive on our east coast; and still larger flocks pass by Heligoland.

In Norway the Blue Titmouse breeds as far north as lat. 64°, but further east its range does not extend beyond 61° N., nor is the bird found in Russia beyond the Ural Mountains. It is generally distributed over the remainder of Europe, except in some of the Greek islands, and is common in Asia Minor; but in Persia it is replaced by *P. persicus*, a much paler bird, with broader white margins to the greater wing-coverts. Continental specimens of the Blue Titmouse are brighter than those of our islands, and attain the maximum of brilliancy in the south of Spain; while on the other side of the Mediterranean, in Tunisia, Algeria and Morocco, we find *P. ultramarinus*, and in the Canaries the insular form *P. teneriffæ*: birds

with the same pattern, but with bluish-slate backs, blue-black crown, and more intense coloration. In Central Russia our Blue Titmouse meets *P. pleskii*, a pale blue-backed form, with the belly pure white, and only a pale yellow spot on the breast; while in Siberia, Russia, and Poland, and, as a wanderer, in Eastern Germany, we find the larger and very beautiful Azure Titmouse, *P. cyanus*, in which pale blue and white are the prevailing colours. I mention this bird because live specimens are not unfrequently brought to England, and, sooner or later, there will probably be an attempt to add it to the British list.

The Blue Titmouse makes its nest in April, and generally selects a hole in a wall or a tree; but, exceptionally, curious sites, too numerous to mention, have been recorded. The bird defends its dwelling with great pertinacity, hissing like a snake, and pecking at the fingers of the intruder in a way which has gained for it the name of "Billy-biter." The nest is composed of wool and moss, with feathers and hair in varying proportions. The eggs, usually 7–8 (though as many as 18 are on record), are white, spotted with light red—more minutely than those of our other Tits: measurements ·58 by ·45 in. This species and the Great Titmouse may be encouraged to almost any extent by hanging up suitable nesting-boxes. The young are fed largely with larvæ of the gooseberry- and winter-moths, *Aphides* and other insects; while the parents also prey on the grubs of wood-boring beetles, the maggots from oak-galls, spiders, &c. In summer and autumn the Blue Titmouse may perhaps damage fruit to a small extent; in winter a meat-bone hung up will always prove an attraction. The note is a harsh *chee*, *chee*, *chee*.

Adult male: forehead, and a line which runs backward over each eye and encircles the crown, white; crown, cobalt-blue; a blue-black stripe runs through the eye to the nape, where it meets a dark blue band which crosses the nape, encircles the white cheeks, and joins the bluish-black throat; mantle and rump yellowish-green; tail and wings blue, the coverts and inner secondaries of the latter tipped with white; breast and abdomen sulphur-yellow, with a bluish-black streak down the middle; bill blackish; legs and feet bluish-grey. Length 4·3 in.; wing to the tips of 3rd—4th and longest quills 2·4 in. The female is somewhat duller in colour. The young exhibit less blue and more yellow in their comparatively dingy plumage.

THE CRESTED TITMOUSE.

PARUS CRISTÁTUS, Linnæus.

It seems probable that the Crested Titmouse has been for ages a resident species in the old forests of Scotland, which now survive principally in the valley of the Spey. Probably the bird does not breed at the present time outside Strathspey. It has occurred in Perthshire in winter, but, as a rule, it wanders little from its usual haunts, and one recorded example in Argyll and another near Dumbarton, appear to be the only instances in Southern Scotland. In England few of the cases on record can be substantiated, but there need be little doubt that from time to time a wanderer arrives from the Continent. A bird in the Museum of Whitby, Yorkshire, was obtained in that vicinity in March 1872, and one, examined by Mr. E. Butterfield, was shot in August 1887 near Keighley, in the same county; one appears to have been killed in Suffolk about 1873, two or three have been taken in the Isle of Wight and Hampshire, and Baron A. von Hügel observed a bird at Bournemouth on March 26th 1874. For details, a careful paper by Mr. J. H. Gurney (Zool. 1890, p. 210) may be consulted.

It is not remarkable that the Crested Titmouse should occasionally visit England, for it is resident in Normandy; while it breeds

sparingly in several districts of Holland, principally in oak-trees, for abroad it is by no means restricted to conifers. It inhabits the pine-forests of Scandinavia and Russia up to about 64° N. lat.; and eastward it can be traced as far as the valleys of the Don and the Volga. In Germany and in the higher districts of France it is tolerably abundant wherever firs are plentiful; while in the Jura, Alps, Carpathians, and other ranges down to the Balkans it is generally distributed, though it does not go far into Italy. In some parts of the Lower Pyrenees I found it common; and in the south of France, as well as in Spain, it may often be observed among trees close by the sea. In the latter country it breeds in the cork-woods in the vicinity of Gibraltar, as well as on higher ground; it is also frequent in Portugal. It has not yet been obtained in North Africa, Greece, or Asia Minor.

In Scotland, the nest of the Crested Titmouse is often placed in the rotten stump of a fir, a hole being bored in the tree, from two to eight feet above the ground; it may be in old stumps of large trees within six inches of the soil, sometimes in gate-posts, iron supports of fences, and fissures in living firs. In Germany, the deserted nests of Magpies, Crows, and squirrels are also utilized; and the bird has been seen by an excellent observer to *occupy* nests built in bushes, apparently those of the Wren and the Long-tailed Titmouse. The materials are moss, deer's hair, wool and fur, felted together; the eggs (usually laid in Scotland at the end of April or early in May), are from 5–8 in number, and are white, boldly spotted or zoned with light red: measurements ·62 by ·48 in. Two broods are sometimes produced in the season. The food of this bird consists of insects and their larvæ, small seeds, and berries. The note is *zee-zee*. The bird is very lively in its habits, flitting rapidly from one pine to another, and it may often be seen during winter in company with Tree-Creepers, Golden-crested Wrens and Tits.

In the adult male the feathers of the head are dull black, broadly edged with greyish-white, and prolonged into a conspicuous crest; on either side a black streak runs from the eye to the back of the head; these join, and descend behind the cheeks (which are mottled with black and white) till they meet the black throat and upper breast; back and wings olive-brown; quills and tail hair-brown; abdomen dull white, turning to buff on the flanks; bill black; feet and legs lead-colour. Length 4·5 in.; wing to the tip of the 4th and longest primary, 2·5 in. The female has a shorter crest and less black on the throat; and the young are like her, but have hardly any crest.

THE NUTHATCH.

Sitta cæsia, Wolf.

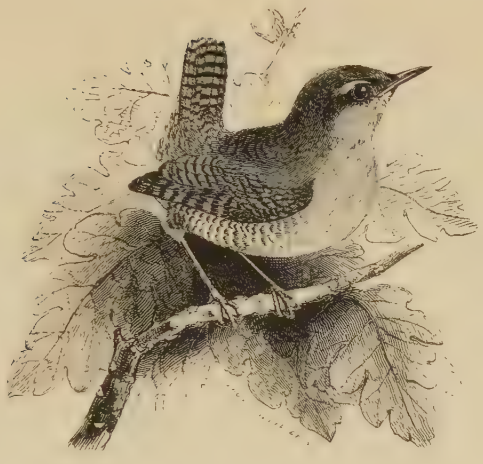
The Nuthatch is tolerably common in most of the districts in the south-east and centre of England which contain old timber. In the west it is rarer beyond Herefordshire, though perhaps increasing, as it is in Brecon, Radnorshire and some other parts of Wales, where it was formerly considered a very uncommon bird. In Lancashire it is seldom seen, and in Yorkshire it is mostly restricted to the large old parks; while in the more northern counties it seems to have decreased during the present century, and is now very rare. In Scotland it has been obtained in Haddington-, Berwick- and Roxburgh- shires, and observed in Skye; it is also said to have occurred on Bressay, in the Shetlands. In Ireland the Nuthatch is as yet unknown: an attempt by Col. Cooper to introduce it at Markree Castle, Sligo, seeming to have failed.

On the Continent the northern limit of this species appears to be the peninsula of Jutland, where it meets its close ally, *S. europæa* (with nearly white under parts), which replaces *S. cæsia* in Scandinavia, Northern Russia and Siberia. From the Baltic southwards to the Mediterranean and Black Seas, our bird is generally distributed; Loche records it from Algeria and Capt. S. G. Reid from North-western Morocco; and it has been obtained in Asia Minor and Palestine. Eastward, it cannot with certainty be traced,

owing to the presence of some questionably valid species. Our bird is absent from Malta; Sardinia and Corsica; but in the last-named island it is represented by a very distinct species, *S. whiteheadi*, with white under parts and—in the male—a jet-black head, named by Dr. R. B. Sharpe after its discoverer.

The Nuthatch begins to breed about the middle of April; generally making its nest in some hole in a limb of a tree, and occasionally between the buttresses of a trunk, close to the ground. A hole in a wall is sometimes selected; and, in many instances, the aperture is filled up with clay and small stones, leaving only a narrow orifice for entrance. An extraordinary nest in the British Museum, presented by the late Mr. F. Bond, was placed in the side of a haystack, and measured thirteen inches by eight, the weight of the clay being eleven pounds. Some distance inside the cavity is a bed of dry leaves or of the scales of the Scotch fir, on which the 5–7 eggs are deposited. These are white, spotted with reddish-brown—larger and more boldly blotched than those of the Great Titmouse: measurements ·77 by ·56 in. In spring the male utters a loud and shrill whistle, as well as *tui-tui-tui*; there is also a bubbling or churring note. When courting he spreads his tail, displaying the white spots, and puffs out the feathers of the breast. In autumn the bird feeds largely on hazel-nuts, which it fixes in some crevice, and then proceeds to hammer with its bill until the shell is broken, each stroke being delivered with the full weight of the body, working from the hip joint; whence the names of Nuthatch (*i.e.*, Nuthack) and Nutjobber. It is also partial to beech-mast, and will eat many kinds of hard seeds, as well as acorns, and even corn in times of scarcity; but during a considerable portion of the year it feeds on insects, for which it searches on trees and on the ground. At such times its motions resemble those of a mouse rather than of a bird, being upward, sideways or downward, with equal facility; while, according to Jardine, and also Blyth, the head and back are sometimes downwards, when roosting.

Adult male: the upper parts generally of a bluish-slate colour; quills browner; central tail-feathers slate-grey, the remainder black at their bases, barred and tipped with white and grey; a black streak running from the base of the bill through the eye to the side of the neck; above the eye a narrow white streak; chin and cheeks white; throat and belly rich buff; flanks and under tail-coverts streaked with dark chestnut; bill horn-colour, lighter at the base; legs and feet brown. Length 5·7 in.; wing 3·4 in. The female is rather duller in colour, and the young are decidedly so.



THE WREN.

TRÓGLODYTES PÁRVULUS, K. L. Koch.

The Wren, a bird as familiar by traditional associations as the Robin Redbreast, is generally distributed throughout the British Islands. Although sedentary with us, its numbers are largely increased by autumnal immigration; many being found in October, according to Mr. Cordeaux, on and near the treeless coasts of Lincolnshire and the south of Yorkshire, and, perhaps less abundantly, in Norfolk. In our remoter islands, the resident birds have become somewhat different from those of the mainland. A single example from St. Kilda was described by Seebohm as *T. hirtensis* (Zool. 1884, p. 333); but Mr. Dresser, who subsequently examined seven examples, considers that the supposed points of difference are all to be found in specimens from various parts of Europe, and that the bird is not worthy of specific rank (Ibis 1886, p. 43). Mr. Barrington considers that the slightly larger Wren resident in Shetland is very close to a dark and more barred form found in the Færoes, which, with the Iceland bird, has been separated as *T. borealis*; while Dr. Stejneger has distinguished the Wren found in the south-west of Norway as *T. bergensis*.

With the above exceptions the typical form of Wren inhabits the whole of Europe; breeding up to the Vefsen fjord in Norway, to 64° N. in Sweden, and nearly as high in Finland and Russia. Eastward, the Ural Mountains appear to be its boundary, and in the

Volga district the Wren is chiefly observed in winter. It is found in Morocco and Algeria, although absent from Egypt; and it has been met with in the Caucasus, Northern Persia, Asia Minor and the north of Palestine; the representative species in Central Asia being *T. pallidus*.

The Wren begins to breed very early, making its nest in shrubs, bushes overgrown with brambles, hedges, banks, the sides of walls covered with ivy, trees, hayricks, thatched roofs and other situations. The materials employed are principally leaves and moss, although dry grass is often used; sometimes there is a lining of feathers. The structure, which is comparatively large, is domed, and has a small hole in the side; the eggs, about 6–8 (though 16 young have been found in one nest), are white, generally spotted with red: measurements ·67 by ·5 in. Two broods are produced in the season. It is a common belief—and one not to be rashly discountenanced—that if the inside of a Wren's nest is touched the bird will desert it; but if care be used such is by no means invariably the case. Imperfect nests are frequently found near an occupied one, and owing to the notion that they are built by the male bird for his lodging at night, they are commonly known as "cocks' nests." In winter, however, old nests and holes in walls or thatched roofs are undoubtedly resorted to by Wrens in some numbers for warmth and shelter. The song, loud for the size of the bird, may be heard during the greater part of the year; the alarm-note is a sharp clicking *chit*. The food consists principally of insects, for which search is made in all sorts of crannies, but in winter the bird will eat seeds and any odd scraps.

The adult has a dull white streak over the eye; upper parts reddish-brown, with narrow transverse darker bars; outer quills umber-brown, barred with buff and dark brown on the exterior webs; under parts buffish-white on the chin and throat, becoming browner on the belly and flanks, the latter being somewhat barred; bill dark brown above, paler below, legs and feet light brown. Length 3·5 in.; wing 1·9 in. The female is smaller, duller above and browner beneath, and has paler legs. The young are less distinctly barred.

THE TREE-CREEPER.

Cérthia familiáris, Linnæus.

Although tolerably numerous, the Tree-Creeper is not very frequently observed, owing to its small size, modest colours, and the quickness with which it shifts its position on the trunk or branch of the tree where it is seeking for spiders and other insects that lurk in the crevices of the bark. It is generally distributed throughout Great Britain from Cornwall to Caithness, occasionally wandering to the Orkneys and Shetlands, and residing in Skye, though not found in the Outer Hebrides. In Ireland it is common in every county where timber prevails.

In Norway the Tree-Creeper is abundant in all the lower conifer-woods up to Trondhjems-fjord; while eastward it occurs in Sweden, Russia, and across Siberia, as far north as trees flourish, to the Pacific. Southward, it is found in Japan, Northern China, and Asia down to the Himalayas, in and south of which several distinct species replace it; westward, it inhabits Persia, Asia Minor, Tunisia, Algeria, and the basin of the Mediterranean generally as far as the Spanish Peninsula; and central it is distributed throughout Europe in suitable localities. Mr. Hartert ('Novitates Zoologicæ,'

iv. pp. 136–139) distinguishes by trinomials five subspecies in Europe, an indefinite number in Asia, and five in North America, from about 50° N. lat. to Mexico and Guatemala.

Towards the middle of April the Tree-Creeper makes its nest; usually selecting a crevice between the partially detached bark and the trunk of a tree, or a narrow cleft in the bole; but not unfrequently placing it behind loose plaster, or under the eaves of a shed or dwelling; sometimes in the foundations of the nests of Birds of prey and Rooks, and in piles of timber or bricks. Fine straw or twigs, roots, grass and moss are the materials employed, with a lining of wool, feathers, and strips of inside bark—often that of the birch-tree. The 6–9 eggs are white, spotted, zoned and blotched with reddish-brown and dull purple, especially towards the larger end: measurements ·62 by ·47 in. Incubation is assiduously performed by the female, who is, however, rather shy, slipping off her nest if she sees an intruder; but sometimes when the young are fledged, even though still in, or close to their home, the parents show remarkable indifference. Two broods are often reared in the season. The food, as already observed, consists principally of insects, and occasionally of seeds of the Scotch fir. The song of this little bird is shrill, but rather pleasing; and I have noticed that in the bright climate of the south of Europe, in the gardens of the Alhambra at Granáda, for instance, it is much more prolonged and joyous than in the north. The call-note is a feeble *cheep, cheep*. When climbing, the stiff-pointed feathers of the tail are depressed; the bird ascending by their assistance and by that of its long curved claws, with a short jerking movement, and generally in spiral curves. In winter the Tree-Creeper may often be observed in company with various species of Titmouse, or with Golden- and Fire-crested Wrens.

The adult has a dull white streak over the eye; feathers of the head, neck, and back dark brown with pale centres; lower back rufous-brown; wing-quills dark brown, barred and margined exteriorly with buffish-white; tail of twelve stiff-pointed feathers, dull reddish-brown, with paler shafts; chin to belly silvery-white; flanks and vent suffused with buff; the rather long, slender, curved bill dark brown above, yellowish below; legs and feet, light brown. Length about 4·75 in.; wing 2·5 in. The sexes are alike in plumage. The young have a more rufous-yellow tinge than the adults.

THE WALL-CREEPER.

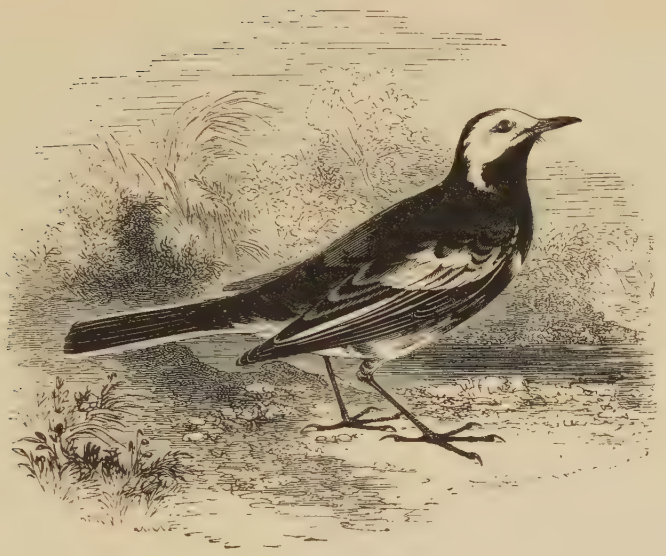
TICHÓDROMA MURÁRIA (Linnæus).

This inhabitant of the mountainous regions of Europe and Asia is a very unusual wanderer to England. The first authenticated instance was furnished by the late Thomas Bell, who published (Zool. s.s. p. 4664, and Tr. Norfolk and Norw. Nat. Soc. ii. p. 180) a letter from Robert Marsham of Stratton-Strawless, Norfolk, to Gilbert White of Selborne, dated October 30th 1792, containing an accurate description of a Wall-Creeper which had just been shot whilst flying about his house. Eighty years later Mr. F. S. Mitchell stated (Zool. s.s. p. 4839) that one, then in his possession, was shot on May 8th 1872, at Sabden, at the foot of Pendle Hill, in Lancashire, when flying around a tall chimney, and attracting the attention of the mill-hands by its crimson-banded wings. Mr. W. R. Butterfield recorded (Zool. 1896, p. 302) the occurrence of an adult in breeding-plumage some years ago near Winchelsea, Sussex.

On migration the Wall-Creeper has occurred several times at Rouen and in other parts of Normandy, while along the Loire it is not uncommon, and seven or eight examples have been obtained as far west as Nantes; most of them on the walls of the old château which overlooks the busy wharves. It breeds sparingly in suitable localities in the Vosges and the Jura; while stragglers have occurred on the Rhine as far north as Coblentz, and in the valleys of the Moselle and the Meuse. In the mountains of Savoy and Switzerland it is generally distributed, being perhaps more abundant in the Grisons than in any other district; it is also resident in the Basses-Alps, Provence, the mountainous regions of the mainland of Italy, Sicily, Sardinia and Elba; while Professor Giglioli has observed it climbing about walls in Florence. Throughout the Pyrenees and the Cantabrian chain, and in the mountains of the Peninsula down to the Sierra Nevada, it is comparatively abundant. East of the Alps we find it in Tyrol, Styria, the Carpathians, Greece, the Caucasus, and the mountains of Asia as far as China; while Rüppell has recorded it from Egypt and Abyssinia.

The nest, composed of moss, straw, and grass, lined with hair, wool and feathers, is placed in some crevice of the rocks; and the 3–5 eggs are white, very finely spotted with reddish-brown: measurements ·78 by ·56 in. Two broods are sometimes produced in the season; incubation devolving upon the female. The call-note is a shrill *pli-pli-pli-pli-pli*, like that of the Lesser Spotted Woodpecker. The food consists of spiders, insects and their larvæ generally, in search of which the bird may be seen climbing up the face of a cliff by vertical jumps; the wings being nearly closed, though spread when the bird is basking; the tail is not used as an aid to progression.

Adult male in breeding-plumage: slate-grey above, darker on the head and still darker on the rump; wing-coverts mostly crimson; quills blackish, tipped with dull white, the 2nd to 5th each with a basal and a sub-apical white spot on the inner web, the 6th with only a buff basal spot; outer webs of nearly all the primaries rich crimson; tail black, tipped with grey and white; throat and breast black; remaining under parts dark grey; bill, legs and feet black. Length 6 in. (bill ·6 in.); wing 3·9 in. The female has rather less black on the throat. In winter that part becomes greyish-white in both sexes, while the head is browner and the upper parts are paler. The young bird at first exhibits less crimson, has a shorter bill, and the throat is grey like the shoulders, though the black throat is acquired the first spring.



THE PIED WAGTAIL.

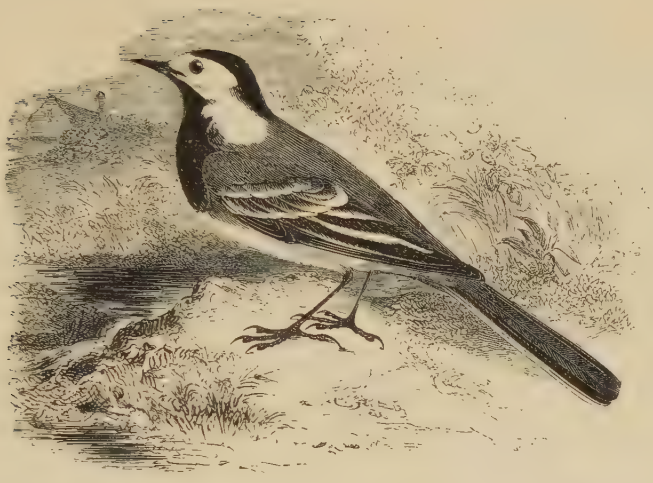
MOTACÍLLA LÚGUBRIS, Temminck.

The Pied Wagtail was first distinguished from the White Wagtail of the Continent by Temminck, who conferred upon it, in 1820, the above scientific name; in ignorance of which, Gould, seventeen years later, called our bird *M. yarrelli*. Throughout the British Islands this is a common and generally distributed species; visiting the extreme north of Scotland in March and remaining to breed, but migrating southwards, as a rule, on the approach of winter. It nests, sparingly, in some of the Hebrides, and from the Orkneys it is now never absent, but in St. Kilda, as also in the Shetlands, it is only known to occur on the spring and autumn migrations. In Ireland it is common and, on the whole, resident, though partially migratory as regards the northern districts; while even in England, though always present, there is a general movement southward in autumn, and northward in spring. The late Mr. A. E. Knox observed large flocks, mainly composed of young of the year, early in September, travelling along the coast of Sussex in the direction of Kent, whence the transit to the Continent is shortest; while from the middle of March numerous small parties, consisting of old males (the females being later), have been seen to arrive from the sea where the Channel is wider.

On the Continent the Pied Wagtail is almost restricted to the western portion. It occurs, and perhaps breeds, in the south-west of Scandinavia; visits Denmark; passes over Heligoland, Holland and Belgium on the spring migration, and nests sparingly in the north-west of France; while in the south-west I observed that males of this species and of the White Wagtail were in full plumage from the latter part of December to the end of March, after which both disappeared. The Pied Wagtail arrives in Portugal about October 20th, and leaves in March, in the which month I obtained an adult male at Seville, Spain; and it occurs near Tangier in Morocco. Eastward, it has been met with irregularly in autumn from Nice to Sardinia, Sicily, and Malta.

Breeding generally begins early in April; the nest—of moss, dry grass and roots, lined with hair and feathers—being in some cleft of a bank, wall, rock or quarry, a decayed or pollarded tree, the thatch of a building, a faggot stack, or even an open field. The Cuckoo often places her egg in it. The 4–6 eggs are greyish-white, closely speckled and streaked with ash-brown: measurements ·8 by ·6 in. Two broods are often reared in the season. The bird feeds principally on insects obtained in the meadows, moist ground, and shallow water, to which it is partial; on the coast it eats the flies &c. found amongst the sea-drift, and Mr. Tait observed it hovering over the water to pick up the floating ova of a small crab, while Booth says that it is fond of glow-worms. The call-note is a sharp *chiz-zic*; the song, seldom heard except in spring, is short but agreeable. The quick running movements of this pretty bird, and the lively motion of its long tail, must be familiar to every one.

Adult male in breeding-plumage: forehead and sides of the head and neck pure white, contrasting strongly with the deep black of the crown, nape, throat and breast; mantle, rump and wing-coverts black, the latter with white margins which form a double bar; quills blackish, the inner secondaries—nearly as long as the primaries—margined with white on the outer edge; tail-feathers black, except the two outer pairs which are mainly white; belly white; sides and flanks blackish; bill, legs and feet black. Length 7·3 in.; wing 3·5 in. The female has a shorter tail, the back is lead-grey with somewhat darker streaks, and the black on the crown and breast is less extensive. After the autumn moult both sexes lose the black chin and throat, and become greyer on the back. The young are like those of *M. alba*, next to be described, but darker on the upper parts.



THE WHITE WAGTAIL.

MOTACILLA ALBA, Linnæus.

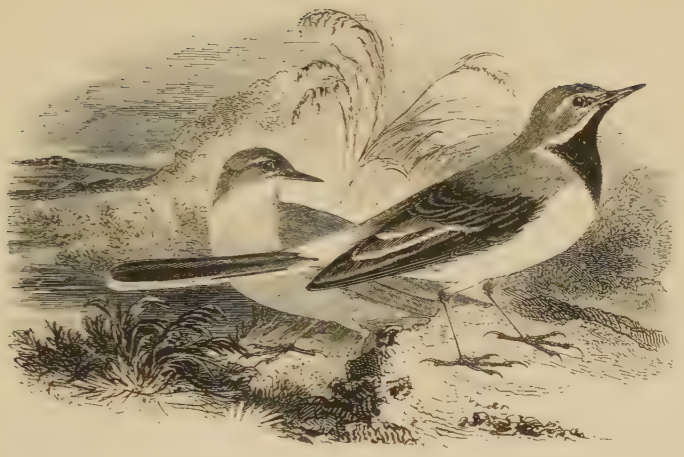
This Continental representative of the familiar species already described was first recognized in England by the late Mr. F. Bond, who found two pairs at Kingsbury Reservoir, Middlesex, in the latter part of May 1841. Since that date it has occurred in a good many counties of England, being not uncommon in Cornwall in spring; Mr. Haigh found it numerous in North Wales on the spring passages of 1891 and 1897; and it is said to have nested in Devon, the Isle of Wight, Kent, Middlesex, Cambridgeshire, Suffolk and Huntingdonshire. Of a pair of birds obtained with their nest and young in Norfolk, presented to the British Museum by Lord Walsingham, the male is a White and the female is a Pied Wagtail; Dr. Günther has informed me of a similar case of interbreeding in Suffolk; and Mr. Aplin has recorded another, with the sexes reversed, in Oxfordshire. Mr. Cordeaux mentions several occurrences in Lincolnshire, in spring; competent observers have noticed the species in Nottinghamshire, Yorkshire, Lancashire and Cumberland; and on May 24th 1885 I watched an adult, probably a male, by some lead-works near Langley Castle in Northumberland. In Scotland the White Wagtail has been observed in some of the southern counties; while pairs have been noticed near Gairloch, in Ross-shire; Booth saw several couples in April on the river bank at Inverness, and a number on the island of Lewis early in May 1877, after rough weather;

moreover it appears that there is a regular spring-migration through Coll, Tiree, and some of the Outer Hebrides. Saxby says that he obtained the White Wagtail in Shetland in May and June. In Ireland it is as yet little known; Mr. R. Warren shot one in co. Mayo on April 25th 1851, and another on April 29th 1893, while Mr. Barrington has a specimen obtained on Achill Island in May 1894.

The White Wagtail is a regular visitor to the Færoes and Iceland, wandering to the Island of Jan Mayen and the south of Greenland. It is found over the whole of Europe and of Northern Asia; the Siberian birds, which are of a purer grey on the upper parts, wintering in India and Burma; while the ordinary form occurs in Asia Minor, Palestine and Northern Africa in summer and winter, visiting Madeira, the Canaries and Senegambia on the west, and Zanzibar on the east, in the latter season. It is one of the earliest species to return to those northern summer-quarters from which cold and want of food have forced it to migrate at the end of autumn; the males arriving about a week before the females.

The sites for the nest are similar to those chosen by the former species; but the White Wagtail has further been known to breed in the burrow of a Sand-Martin, and also to make its nest in an open place in the middle of a strawberry-bed. The 5–7 eggs are sometimes of a rather bluer grey, with bolder ashy markings, than those of the Pied Wagtail; but frequently they cannot be distinguished, and the average measurements are identical. In general habits, food and haunts, the White Wagtail hardly differs from our indigenous bird; I have seen flocks whitening the furrows in Spain and the south of France, as Mr. Gurney has in Algeria.

The adult male in breeding-plumage has the forehead and the sides of the head and neck white; crown and nape black; back and rump ash-grey; upper wing- and median coverts tipped with white; quills blackish, the long inner secondaries edged outside with white; tail-feathers black, except the two outer pairs which are mainly white; chin, throat, and breast black; abdomen white; flanks grey; bill, legs and feet black. Length 7·5 in.; wing 3·5 in. The female has a shorter tail; her colours are less pure, and the black portions are more restricted. After the autumn moult the chin and throat are white, and the black is reduced to a crescentic band. In the young the white forehead, cheeks and throat are tinged with yellow, and the head and mantle are olive-grey, but males soon show white on the forehead and black on the throat. Long before the following spring the olive tint has disappeared, and the young have a light appearance.



THE GREY WAGTAIL.

MOTACILLA MELANÓPE, Pallas.

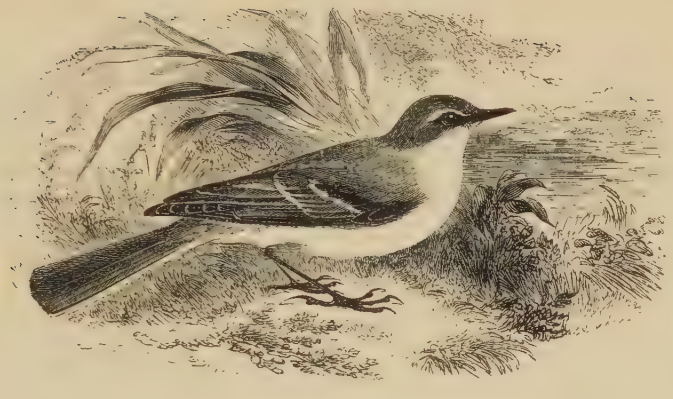
This beautiful species, easily recognizable by the yellow tints of its under parts and its exceptionally long tail, is resident, or partially migratory, throughout those portions of the British Islands where streams are found in the vicinity of mountains, or even hills; but to the flat country and the sea-coast it is chiefly a visitor on migration and in winter. It breeds regularly in Cornwall, Devon, Somerset, Dorset and Wilts; and sparingly in Hampshire, Surrey, Sussex, Kent, Buckinghamshire, Oxfordshire, Leicestershire and Lincolnshire. In Wales and the Marches, as well as on both sides of the Pennine range, it is common, increasing in numbers to the northward. In Scotland it is generally distributed, although not very abundant in Sutherland and Caithness; it nests in small numbers in Skye, and occasionally visits the Outer Hebrides, Orkneys and Shetlands. It breeds throughout Ireland, where it is a familiar species.

On the Continent the Grey Wagtail barely reaches the extreme south of Sweden, and is very rare in Northern Germany, while in Russia it is hardly found beyond the latitude of Moscow; but in the mountainous and even rolling ground of the central and southern parts of Europe it is fairly common; breeding down to the basin of the Mediterranean, where it is a resident, as it is also in the Canaries, Madeira and the Azores. Eastward, it is

found in summer across Asia (south of about 67° N. lat.) to Persia, Turkestan, the Himalayas, Northern China and Japan ; wintering as far south as the Indo-Malayan islands, and down to Somali-land in Africa.

The nest is placed usually near a stream, in some rugged portion of a bank, occasionally among the stems of a shrub, frequently in a rough stone wall or some crevice of the rocks. In the Pyrenees, where the Grey Wagtail is very abundant, I observed a nest behind a pair of votive crutches at the entrance to the grotto at Lourdes. The materials employed are moss, soft grass and fine roots, with abundance of hair for a lining. The eggs, usually 5 in number, are greyish-white, mottled with pale clay-colour, and sometimes marked with a few black hair-streaks at the larger end : measurements ·75 by ·55 in. Two broods are occasionally reared in the season ; the first eggs being laid in April ; and the male takes his share in the task of incubation. The food consists of aquatic and other insects, small molluscs and crustaceans ; and at the baths of Dax in the Landes, a pair of birds which frequented the courtyard of the hotel used to enter the open windows of the thronged corridors, with the utmost familiarity, in search of flies. The call-note is a sharply uttered *zis zi*. In its constant and rapid movements this species resembles its allies, but it is decidedly more addicted to perching on trees by the side of streams.

The adult male in breeding-plumage has the crown and ear-coverts slate-grey, with a narrow white streak above the eye ; below the lores, which are black, a broad white line runs on each side to the nape, which is slate-grey, as are the mantle and rump ; wing-feathers brownish-black, the long secondaries margined with buffish-white ; upper tail-coverts greenish-yellow ; the outside pair of tail-feathers white, the next two pairs also white with a black stripe along part of the outer web, the remainder brownish-black ; chin and throat black ; breast to lower tail-coverts sulphur-yellow ; bill dark brown ; legs and feet pale brown. Length from 7 to 7·5 in., depending upon the length of the tail, which is variable ; wing 3·3 in. The female has a shorter tail than the male, and her tints are duller and greener, while on the throat she has far less black, and usually none at all. That part becomes white in both sexes in autumn, when a buff tint appears on the breast. The young bird is browner than the female, and its eye-stripe is buff. This species has bred, in captivity, with the Pied Wagtail, and the hybrids proved fertile.



THE BLUE-HEADED WAGTAIL.

MOTACILLA FLAVA, Linnæus.

In 1832 it was pointed out by Gould that the Blue-headed Wagtail of the Continent was distinct from the Yellow Wagtail, which is a regular visitor to our islands; two years later Doubleday shot an example of the former at Walton-on-the-Naze; and since that date a considerable number have been obtained or observed, mostly in the south-western, southern, and eastern counties of England; while the bird nested on several occasions near Gateshead, Durham (Hancock); and Mr. Haigh shot one in Merionethshire on April 22nd 1897. As a rule, however, the Blue-headed Wagtail can hardly be considered as more than an irregular visitor on migration; generally in spring, but not unfrequently in autumn. In Scotland it has been shot near Edinburgh and Dunbar, as well as on the Pentland Skerries, south of the Orkneys; while Saxby states that he obtained it on the autumn migration in Shetland.

The Blue-headed Wagtail has wandered to the Færoes; and I have examined a specimen in the British Museum obtained by Gould in summer as far north in Norway as the Dovrefjeld. Southward, it is found throughout Europe; breeding in the west down to the shores of the Mediterranean, where it is partially resident, and pushing its migrations in winter to the south of Africa. Eastward, it is found across Asia to the Pacific; and also in Alaska, where it breeds up to 64° N. lat. This Wagtail runs to varieties which are, in the opinion of some ornithologists, entitled to take rank as species; but upon this intricate question I must refer my

readers to Dr. Sharpe's views (Cat. Birds Brit. Mus. x. pp. 516–532). I have only room for the broad statement that in Upper Scandinavia, Northern Europe, and Siberia, migrating as far as the south of Africa and India, there is a form (the male of which has a nearly black crown and no eye-streak) known as *M. viridis* of Gmelin, or better as *M. borealis* of Sundevall; two examples of which are said to have occurred at Penzance. In the basin of the Mediterranean is found a close ally, *M. cinereicapilla* of Savi, with grey crown but very little eye-streak; while in South-eastern Europe and Central Asia there is an easily recognizable race with a very black head and no eye-stripe, known as *M. feldeggi* or *M. melanocephala*; and when, as in Hungary, this black-headed bird exhibits a narrow white eye-stripe, it is called *M. paradoxa*.

Breeding commences in the latter half of May; the nest being placed on the ground among herbage in meadows and corn-fields. It is composed of fine roots, grass and moss, lined with horsehair and a few feathers; the 4–6 eggs being yellowish-white, clouded with pale brown, and sometimes scrolled with black at the larger end: measurements ·78 by ·56 in. The food consists of insects and their larvæ; and the bird is very partial to small flies, in pursuit of which it may be seen strutting and fluttering within a few inches of the muzzles of grazing horses or cattle; whence the German name 'Kuh-stelze.' The call-note is a shrill *chit-up*.

The adult male in breeding-plumage has the crown and nape bluish-grey; lores and ear-coverts dark slate-grey: over each eye and ear-covert a white streak; mantle olive, tinged with yellow; wing-coverts dark brown, with yellowish-white tips, forming a double bar; secondaries margined with the same colour; quills dark brown; tail-feathers blackish-brown, except the two outer pairs, which are white with black edges to the inner webs; chin and a line below the lores white; throat, breast and tail-coverts bright gamboge-yellow; bill, legs and feet black. Length 6·3 in.; wing 3·2 in. The female is rather shorter; the head has a more olive tint, and the yellow of the under parts is less pronounced. In autumn both sexes acquire an olive-brown tinge. The young are greenish-brown above, with a rough V-shaped line of brown spots from the nape to the breast, while the under parts are only pale yellow; but the *white* eye-stripe which serves to distinguish typical examples of this species from our Yellow Wagtail is always present. Young males often display in their first spring some dark mottlings on the throat, grey patches on the head, and a considerable amount of yellow on the shoulders.

THE YELLOW WAGTAIL.

MOTACILLA RAII (Bonaparte).

The Yellow Wagtail is a regular summer-visitor to the British Islands, arriving early in April, and leaving again in September. In Cornwall and Devon it is chiefly seen on migration, though it nests in the latter; but from Somersetshire onwards, it is generally distributed throughout England as a breeding-species in wet meadows and other suitable situations. In Wales it is local, and chiefly noticed on migration. In Scotland it has nested as far as Perthshire, and perhaps up to the south-west of the Great Glen, but is rarely found beyond the latter; while a wanderer has been obtained in North Ronay, Outer Hebrides, and the bird is said to have occurred in the Shetlands. In Ireland it breeds regularly about Lough Neagh, in Ulster, as well as on Loughs Corrib, Mask and Carra, in Connaught; the nest has also been obtained once near Dublin, where the species occurs on migration, as it has done in co. Wexford (Ussher).

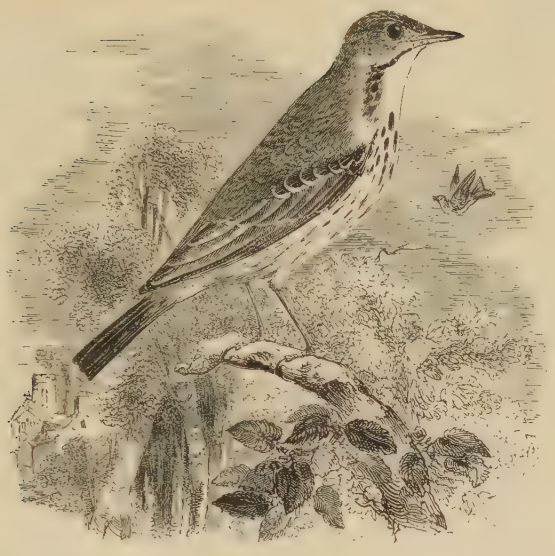
Although the Yellow Wagtail has occurred on Heligoland, Borkum, and the coast of Holland, it is only west of Belgium that it is known as a regular visitor, while even in the north of France the Blue-headed Wagtail prevails in the breeding-season as far as Dieppe. Westward our Yellow Wagtail is said to predominate; and on passage it visits the south of France and both sides of the Iberian Peninsula with great regularity, though only of rare and

accidental occurrence in Italy, Sicily, and Malta; while southward, its migrations extend down the coast of W. Africa as far as the Gaboon. A large and isolated colony is said to inhabit the valley of the Lower Volga, the Caspian region, and Turkestan as far east as the Altai Mountains; the migrations of this section reaching along the eastern side of Africa as far as Natal. In Eastern Asia the representative species is *M. taivana*.

The nest, built early in May and generally well concealed, is placed in a depression or a small furrow of the ground in a meadow or corn-field; sometimes in a bank, or at the foot of a wall, among the long rank herbage. Even in the same locality there is considerable variation in the materials employed; moss and dry grass being generally used for the exterior, while the lining may be of feathers, hair, rabbit's-down, or fine roots. The 4–6 eggs are greyish-white mottled with clay-brown, and often have some black hair-streaks: measurements ·78 by ·56 in. A second brood is sometimes reared in the season. The food consists of the small thin-shelled molluscs found among water-meadows, and various kinds of insects; and the bird is as partial as the Blue-headed Wagtail to the proximity of grazing cattle. In its note and in the bold curves of its flight, it also resembles that species; it is, however, rather more addicted to perching on low bushes and fences.

Adult male in breeding-plumage: lores, ear-coverts and back, greenish-olive; the forehead yellower; a sulphur-yellow streak over the eye and ear-coverts on each side; wing-coverts and quills dusky-brown, tipped and margined with pale buff; tail-feathers blackish-brown, except the two outer pairs which are white, merely edged with black on the inner webs; under parts rich sulphur-yellow; bill, legs and feet black. Length about 6·25 in.; wing 3·15 in. The female is browner on the upper parts, and the eye-streak and under parts are less yellow. In autumn the adults of both sexes become much paler. The young in the first and nestling-plumage, which is only worn for a short time, are greenish-brown on the upper parts, and buff on the breast, much resembling young Pipits; later they turn yellow on the vent and under parts, and gradually become like their parents, though the sides of the neck and the breast are spotted with dark brown for some time.

For those Wagtails which exhibit a prevalence of yellow in their plumage and have also a longer hind-claw than the Black-and-white Wagtails, Cuvier established the genus *Budytes*; and, inasmuch as the Grey Wagtail presented intermediate characters, Kaup invented for it the genus *Calobates*.



THE TREE-PIPIT.

ANTHUS TRIVIÁLIS (Linnæus).

The Pipits superficially resemble the Larks, but differ from them considerably in structure and some of their habits; while they agree with the Wagtails in almost every respect, except in the coloration of the plumage. Like the latter birds, Pipits moult twice in the year —partially in spring—and they are equally fond of bathing; while Larks have only an autumnal moult, and usually dust themselves over, instead of washing.

The Tree-Pipit generally arrives in the southern portions of England early in April; and, except in the west of Cornwall, it is fairly distributed throughout the country in summer; while in Wales it is very common in the moist, wooded valleys suited to its habits. In Scotland, where it is often mis-named "Wood-Lark," it is plentiful in the south-west districts, while it appears to be fairly diffused in other parts of the country, but it is rarer in the north, is very local in Aberdeenshire, has only been detected breeding in Sutherlandshire since 1875, and is merely a wanderer to the Orkneys. In Ireland its reported occurrence has not yet been authenticated. The majority depart for the south during the month of September, but in the west the late Mr. Cecil Smith observed a flock of about

a score preparing to migrate from the cliffs near Exmouth on the 26th of October.

A specimen of the Tree-Pipit is said to have been brought by the Austrian Expedition from Jan Mayen [?] On the Continent this species breeds as far north as Tromsö in Norway, and southward to the Pyrenees, the higher grounds of Northern Italy, and the Crimea; below which it is principally known as a migrant in spring and autumn, or as a resident in winter; as it is also in the northern portion of Africa, from the Canaries and Morocco on the west, to Egypt, Nubia and Abyssinia on the east. It occurs in Siberia in summer as far east as Krasnoiarsk in the valley of the Yenesei, where it meets with *A. maculatus*, a closely-allied form, more olive-green in colour and with few dusky streaks on the upper parts. In winter the Tree-Pipit has been found in India, as far south as Belgaum and as far east as Chutia-Nagpur (Oates).

About the middle of May the nest, placed on the ground among herbage, is constructed of moss, dry grass and roots, lined with fine bents and a little hair. The 4–6 eggs are subject to much variation; some being greyish-white, mottled with deep brown; others rich reddish-brown; some almost lilac-pink; and again a not uncommon variety resembles the egg of the Reed-Bunting: measurements ·82 by ·6 in. Two broods are sometimes reared in the season. The food consists principally of insects, with small seeds. The song of the male, *see-ar, see-ar, see-ar*, is generally begun on the topmost branch of a tree, after which the bird rises and hovers in the air, and descends—still singing—to his perch.

Adult male: eye-stripe buff; upper parts clear sandy-brown with distinct dark brown streaks; wing-coverts and secondaries dark brown with paler edges; primaries dull brown; outer pair of tail-feathers white, with a dark brown stripe on part of the inner webs; the second pair merely tipped with white, and otherwise dark brown, like the remaining rectrices; chin dull white; throat buff, with a dark line on each side from the bill to the gorget; sides of the neck, breast and flanks buff, with elongated spots and streaks of dark brown; belly dull white; bill brown above, lighter below; legs and feet pale flesh-colour in life, but yellowish-brown in preserved specimens. Length 6 in.; wing 3·3 in. The female is slightly smaller, and less distinctly spotted on the breast. In autumn the buff tint is more pronounced; and in young birds the spots and streaks are smaller in size, but more numerous. The Tree-Pipit may always be distinguished from the Meadow-Pipit by its somewhat larger size, warmer buff tint, paler legs, and much shorter and more curved hind claw.

THE MEADOW-PIPIT.

ANTHUS PRATÉNSIS (Linnæus).

The Meadow-Pipit—generally known as the Titlark, and locally by the names of Titling, Moss-cheeper, Ling-bird &c.—is the smallest and most abundant member of the genus throughout the British Islands. During summer it is nearly as much at home on elevated moors as on lowland pastures; but in winter the bleaker situations are deserted for more sheltered localities, especially those in the vicinity of the sea-coast. In autumn considerable numbers leave our shores altogether, and a return migration takes place in spring.

In the Færoes and Iceland the Meadow-Pipit is common in summer, while in South Greenland a solitary wanderer was obtained in 1845. The breeding-range extends over the greater part of Europe, from the North Cape to the Pyrenees, the northern portions of Italy and the Carpathians, and perhaps to some of the elevated regions still further south; but in the basin of the Mediterranean the bird is principally known as a visitor on passage or in winter. Eastward, it is found in Asia Minor, Palestine, Western Turkestan, and the valley of the Ob in Siberia; while its southern wanderings reach North Africa, from Morocco to Egypt. In the Canary Islands and Madeira there is a resident insular form known as *A. bertheloti*, smaller in size, with paler and less marked upper parts, narrowly striated under parts, and no green tint in its plumage.

Our resident Meadow-Pipits begin to breed early in the spring,

but the migratory individuals which arrive from the south in April are somewhat later. The nest, placed among sheltering herbage in a depression of the level ground or the side of a bank, and often in ling, is constructed of dry grass with a lining of finer materials; the eggs, usually 4–6 in number, being greyish-white—sometimes with a green and at others with a pinkish tint—thickly mottled with different shades of brown, and occasionally having a few hair-streaks at the larger end: measurements ·78 by ·57 in. Two broods are generally reared in the season. In many districts, especially on the moorlands where other small species of birds are comparatively scarce, the Cuckoo commonly places her egg in the nest of the Meadow-Pipit. The rather shrill song is generally uttered on the wing, but sometimes from a stone or low bush. The food consists of insects, worms, small snails and molluscs, with seeds in winter; and in search of these the bird may be seen working its way among grass or heather with a slow creeping movement, varied by an occasional quick run. Its flight is jerky and wavering. The scent emitted by the Titlark is very strong, and dogs 'point' it more frequently than they do any other ground-bird.

Adult male: eye-stripe narrow and dull white; upper parts olive-brown, with dark stripes down the centre of the feathers; quills dark brown, with a greenish-yellow tint on the margins of the outer webs; wing-coverts and inner secondaries (the latter being shorter than the primaries) brown, edged with dull white; tail dark brown, except the outer pair of feathers which are white on the terminal part, while the second pair have a white spot near the tip; under parts dull white, streaked with brownish-black on the throat, gorget and flanks; bill dark brown above and at the tip, the rest paler; legs and feet pale brown; hind claw longer than the hind-toe, and only slightly curved. Length 5·75 in.; wing 3·1 in. The female is less richly spotted below. After the autumn moult, the upper as well as the under parts are suffused with a yellowish-buff tint; and in spring this hue is very noticeable on the throats of fresh arrivals from the Continent. The young are even more buff-coloured, but the streaks on the under parts are smaller and browner than in the adults.

THE RED-THROATED PIPIT.

ANTHUS CERVÍNUS (Pallas).

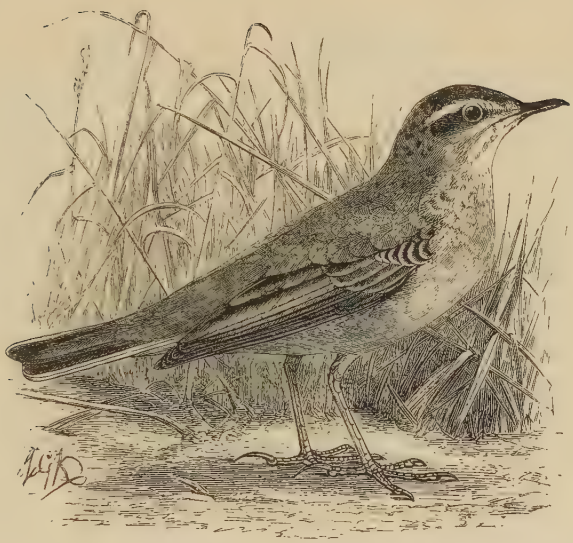
On March 13th 1884 a Red-throated Pipit was brought by a bird-catcher to the late Mr. Swaysland, the well-known bird-stuffer at Brighton, and was examined in the flesh on the following day by Mr. J. H. Gurney, who recorded the occurrence in 'The Zoologist' for that year (p. 192). In the same volume (p. 272) Mr. Walter Prentis stated that, in April 1880, he shot an example of this species at Rainham in Kent, whilst it was feeding and singing along the freshly-turned furrows behind his plough, and sent it, as merely a bright-coloured Meadow-Pipit, to Dover for preservation. Both these specimens were forwarded to Dr. R. B. Sharpe, who exhibited the former—now in the possession of Mr. T. J. Monk of Lewes—at a meeting of the Zoological Society, April 1st 1884. Up to that year no thoroughly authenticated British-killed example was known, although the late Mr. Bond possessed a genuine specimen of the bird, labelled "Unst, May 4th 1854," purchased at the sale of the collection of the late Mr. Troughton. Subsequently, as recorded by Mr. F. Coburn (Zool. 1896, p. 101), an example was obtained near St. Leonards, Sussex, on Nov. 13th 1895, and this was exhibited at the meeting of the British Ornithologists' Club in the following December.

The Red-throated Pipit is one of the species which, throughout the year, enjoy the maximum of sunshine. Amidst the continuous daylight which reigns in summer to the north of the Arctic circle, it breeds in many parts of Scandinavia, especially in East Finmark; while eastward we find it—in augmented numbers beyond the limit

of forest-growth—from Novaya Zemlya, across Siberia to Kamchatka and Bering Island. It even appears to have crossed the Pacific to Alaska and Lower California; and its migrations undoubtedly extend to Southern China, Borneo, Burma, India, Persia and Egypt. In the last-named country and in Nubia the bird is exceedingly abundant in winter, and up to the month of April, by which time it has assumed full breeding-plumage. West of Tunisia, in North Africa it becomes much rarer, though occasionally found near Gibraltar; but the main line of the spring-migration passes through Eastern Europe, curving round to Scandinavia, and the species is undoubtedly scarce to the west of Heligoland.

The Red-throated Pipit makes its nest in the sides of the tussocky ridges of the bogs or *tundras* of the north; dry grass being the material employed, with a finer lining of the same. The eggs, 4–6 in number, vary from a nearly uniform rich mahogany colour to a greenish-grey with dark brown mottlings: measurements ·75 by ·58 in. In late springs breeding does not commence before the last week in June, so that only one brood can be reared in the season. The note is louder, fuller, and richer than that of the Meadow-Pipit. The food consists principally of insects and their larvæ, small worms, molluscs and grass seeds. In its winter quarters the Red-throated Pipit is gregarious; and frequents planted fields where suitable cover exists.

The adult male, in breeding-plumage, is browner on the upper parts than either the Meadow- or the Tree-Pipit, and the black streaks are more pronounced; the eye-stripe is broad and of a rufous-buff; the tail-coverts are more striped; the inner secondaries nearly equal in length to the primaries, as in the Tree-Pipit; the chin, throat, sides of the neck and breast vinous-chestnut; the gorget has fewer and smaller spots, but the flanks and under tail-coverts are broadly streaked; abdomen buff; bill dark above, yellowish below; legs and feet light brown; hind-toe as in the Meadow-Pipit. Length 5·8 in.; wing 3·5 in. In the female the vinous-chestnut only extends to the throat, and her breast and flanks are more streaked with black; she is also smaller in size. In winter the red throat is only found in mature birds, and at that season the feathers of the mantle are margined with white; the general tint being greyish-brown, without the olive-green of the Meadow-Pipit. Birds of the year are very buff in colour on both upper and lower parts; but even by December there is a little rufous round the eye and on the cheeks, and that tint is slightly apparent on the throat.



THE TAWNY PIPIT.

ANTHUS CAMPÉSTRIS (Linnæus).

The Tawny Pipit was first noticed as a wanderer to our islands by the late Mr. G. Dawson Rowley, who recognized two examples shot in autumn near Brighton, one of which had previously been taken for a Richard's Pipit (Ibis 1863, p. 37). Since that time about a score have been obtained, at the same season of various years, in Sussex; one at Trescoe, Scilly Islands, in September 1868; one at Bridlington, Yorkshire, on November 20th 1869; and one near Lowestoft, September 2nd 1890; while other occurrences may have been overlooked.

It is somewhat remarkable that the Tawny Pipit should not have been noticed on our shores in spring; inasmuch as it is an annual visitor, for the purpose of breeding, to the sandy dunes of the north of France and Holland, and suitable dry wastes inland. Rare in Denmark, it passes over Heligoland on migration, and is not uncommon in the south of Sweden; while on the islands and the south-eastern side of the Baltic as far as Riga it is generally distributed in summer. Southward it occurs, either breeding or on passage, in most of the stony and arid districts of Europe down to the Mediterranean; north of which sea it is not found in winter. In Northern Africa it is probably a resident species; while its migrations are known to extend to the Canaries and down to

Damaraland on the west side of Africa, and the Lake districts on the east. From Palestine and Asia Minor we trace it to Turkestan and the plains of North-western India; while from Central Asia to Eastern Siberia it is represented by a smaller race of doubtful specific distinctness. It is essentially a desert-loving species, and even when migrating will seldom be found on fertile or well-watered soil, but on plains sprinkled with a little coarse herbage it is usually abundant, up to an elevation of about 5,000 feet in Southern Europe. It crosses the Mediterranean from the end of March onwards, and reaches the shores of the Baltic late in April; while the return migration takes place in August and September.

The nest is placed at the foot of a shrub or bush—on the lee-side where there is a prevalent wind—and sometimes among growing barley; the materials being roots and dry grass, with a lining of horsehair. The eggs, 5–6 in number, are of a greyish-white, blotched and streaked with darker grey and purplish-brown; resembling, as already observed (p. 74), those of the Rufous Warbler: measurements ·85 by ·62 in. The food consists of small insects, but seldom or never of seeds. This species does not collect in large flocks, like other Pipits. The call-note is a short *whit*; and the song, usually uttered during a brief fluttering flight, is poor and monotonous.

The adult male in spring is sandy-brown tinged with grey on the upper parts, with dull darker centres to the feathers, more marked on the crown, but almost obsolete on the rump; over the eye a buffish-white streak; ear-coverts ash-brown; wing-coverts dark brown with buff edges; quills and secondaries umber-brown, with tawny margins; the outer pair of tail-feathers dull white, with a large portion of the margin of the inner web brown; in the second pair the brown extends nearly to the shaft, which is also brown, as are the remaining tail-feathers; from the base of the bill to the eye a faint dusky stripe; chin and throat tawny-white; breast warmer buff, slightly striated with brown; lower parts paler; bill brown above, yellowish below; legs and feet yellowish-brown. Length 6·5 in; wing 3·6 in. The female is slightly smaller than the male, and is said to be often without the streaks on the breast, but the least spotted bird in a series before me is a male. From the autumn moult to the early part of the following spring the tints are much more tawny, and, in young birds, are pronounced on the margins of the wing and tail-feathers, while the brown markings of the upper parts and of the breast are more intense.

RICHARD'S PIPIT.

ANTHUS RICHÁRDI, Vieillot.

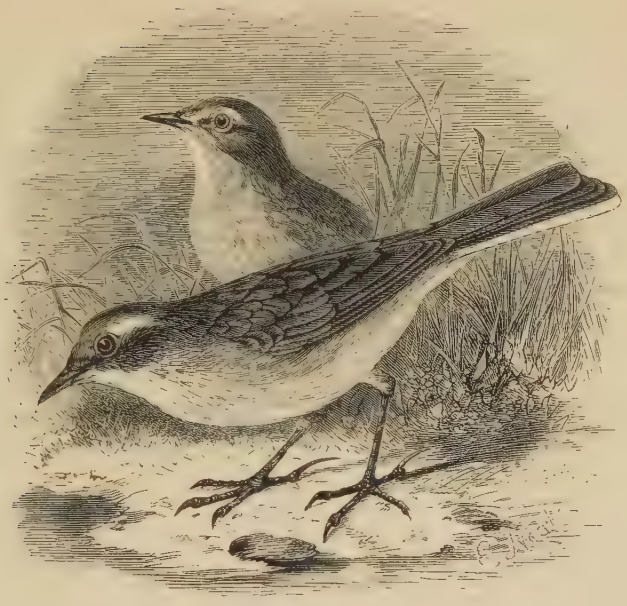
This large Pipit, distinguishable by its length of limb and extremely long hind claw, is an Eastern species which visits Western Europe irregularly on migration, and generally in autumn. At least sixty occurrences are on record in Great Britain—but none in Ireland—since 1824, when Vigors announced the bird as a visitor to our shores. The majority of these have been in the southern districts of England, especially on the Sussex coast; but six specimens have been obtained near Yarmouth in Norfolk, three in Northumberland, one in Shropshire, one—in summer—near Fleetwood in Lancashire, two in Cumberland, two in Warwickshire, and one in Kent. In Scotland the only authenticated example is one obtained by Mr. J. G. Millais, near Dunkeld, on August 2nd 1880.

It is only as a rare visitor that Richard's Pipit has been met with in the southern districts of Norway and Sweden; but on Borkum, and along the coasts of Holland, Belgium and France, it is not so infrequent on migration, while on Heligoland it is abundant in autumn and not unknown in spring. In Central Europe it is rare, though in the south of France, especially in Provence, it is well known; near Málaga and throughout the south of Spain it is in some years tolerably common from November to April; while it occurs irregularly in Italy and in the basin of the Mediterranean, occasionally visiting North Africa. Its usual breeding-grounds are not to be found west of Turkestan; in the valley of the Yenesei

Seebohm found both old and young in August, up to 58° N. lat.; and the bird nests abundantly on the elevated steppes of Eastern Turkestan, the Lake Baikal district and Mongolia. In winter it visits South China, Burma, and the Indian region to Ceylon.

The nest is built during the early part of June, in some depression in a meadow or grass-field; and the eggs, which, judging from the clutches obtained by Dybowski, are generally 5 in number, are greyish-white blotched with various shades of brown: measurements ·86 by ·68 in. In Daüria the Cuckoo frequently deposits her egg in the nest of this Pipit. Two broods are sometimes reared in the season; and in September the southward migration commences. In winter the bird is described by Mr. Brooks as frequenting paddy-grounds and vetch-fields in Bengal, where it is very wary, keeping a sharp look-out, with head erect and outstretched neck; but Col. Legge found it very tame in the wet pastures of Ceylon. Its usual call-note is loud, and calculated to attract attention, while it has also a soft double chirp like that of a Bunting. The ordinary flight is undulating and strong. Col. Legge says this bird feeds on worms and grasshoppers, and often seizes a passing butterfly or insect on the wing. The name was conferred in honour of M. Richard, of Lunéville in Lorraine.

The male in breeding-plumage has the feathers of the upper parts sandy-brown with dark centres, producing a mottled Lark-like appearance; rump nearly uniform brown, tail-coverts striated; wing-coverts tipped with reddish-buff; secondaries broadly—and primaries faintly—margined with buffish-white; outer pair of tail-feathers nearly white, with only a narrow dusky margin to the inner web; in the second pair the dusky margin extends nearly to the tip, and the shaft also is brown; remaining tail-feathers very dark brown, with pale and often buffish margins to the central pair; chin white; a dotted line of brown spots from the base of the bill down each side of the neck to the gorget, which is still more spotted on a buff ground-colour extending down the flanks; abdomen dull white; bill dark brown above, yellowish below; legs and feet yellowish-brown; hind claw generally longer than the toe. Length 7·25 in.; wing 3·75 in. The female is smaller, but similar in plumage. In autumn a decidedly more rufous tint pervades the upper and, still more, the under parts. In the young the pale margins to the upper feathers and the streaks on the under parts are more pronounced. A specimen in my collection, which I take to be a bird of the previous year, obtained at Málaga on March 15th, is renewing its tail-feathers.



THE WATER-PIPIT.

ANTHUS SPIPOLÉTTA (Linnæus).

The true Water-Pipit is an unusual visitor to England; its occurrences having been estimated as more frequent than was really the case, owing to a confusion with the Scandinavian form of the Rock-Pipit, which occasionally visits us. The first authenticated examples of the Water-Pipit were recorded by Mr. Pratt of Brighton, in 1864, when one killed near that town, and another taken near Worthing, were sent to Gould for identification; while subsequently three have been obtained at Shoreham and one at Lancing, on the spring and autumn migrations. On April 5th 1895, Mr. G. H. Caton Haigh shot one at Tetney, Lincolnshire, and on April 5th 1897 he obtained another at the mouth of the Glaslyn, Carnarvonshire. Both these specimens were exhibited at meetings of the British Ornithologists' Club.

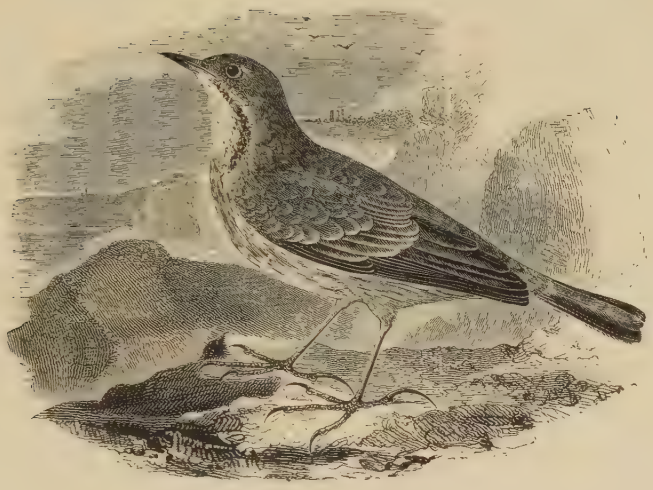
During the breeding-season the Water-Pipit is to be found on the Alps and the mountain ranges of Germany and Central Europe, the Pyrenees, and some of the higher regions in the Spanish Peninsula, even in the extreme south. Two examples are said to have been obtained on Jan Mayen Island early in June by the

Austro-Hungarian expedition. On passage it occurs throughout Europe south of the Baltic, down to the Mediterranean and Black Seas. In Russia it breeds in the Ural Mountains up to 64° N. lat., and in the Caucasus; as it does in the high ranges of Asia Minor, Persia, Baluchistan, Turkestan, and in the Altai. In winter it visits the North of Africa, and Asia to Western India; being replaced to the eastward by a smaller form, *A. blakistoni*. In Japan the representative is *A. japonicus*, doubtfully distinct from *A. pennsylvanicus*—also known as *A. ludovicianus*—which is found throughout North America and in Greenland; the latter has also been identified in Heligoland, and is said, but on insufficient evidence, to have occurred in Great Britain.

The Water-Pipit returns to its breeding-quarters as soon as the elevated regions are sufficiently free from snow; and quite early in May I observed large numbers in the Vallée du Lis, above Luchon. The nest, loosely composed of dry grass and plant-stems, lined with a few hairs and feathers, is placed on the ground among stones, or under the shelter of a low bush; the eggs, usually 5 in number, are greyish-white mottled with brownish-olive: measurements ·8 by ·6 in. In some localities two broods are reared in the season. The song of the male is an often-repeated *tit, tit, tit*, uttered in the air or from the top of some bush. The food consists of insects, minute snails, and small seeds.

The adult male in breeding-plumage has a white stripe over the eye and the greyish-brown ear-coverts; upper parts greyish-brown, turning to brown on the rump; wings dark brown with pale edges to the coverts and secondaries; the exterior pair of tail-feathers white on the outer portion, the second and third pairs brown tipped with white, the remainder brown; chin white; throat and breast warm vinaceous-buff; belly paler, and flanks rather browner, with a few dark streaks; bill, legs and feet brown. Length 6·5 in.; wing 3·6 in. The sexes are alike in plumage. In autumn the vinous tint is lost, and the sides of the neck and breast are spotted with dark brown. The young bird is still more spotted, and the outer webs of the exterior pair of tail-feathers are pale brown.

The Water-Pipit may always be distinguished from the Rock-Pipit by the distinctly *white* colour of the outer part of the exterior pair of tail-feathers, and the white tips to the second pair; and, although in young birds this white is not so pure as has been asserted, it is sufficiently so for the distinction of the species from even the Scandinavian form of the Rock-Pipit, which, in its turn, is much brighter than our resident bird.



THE ROCK-PIPIT.

ANTHUS OBSCÚRUS (Latham).

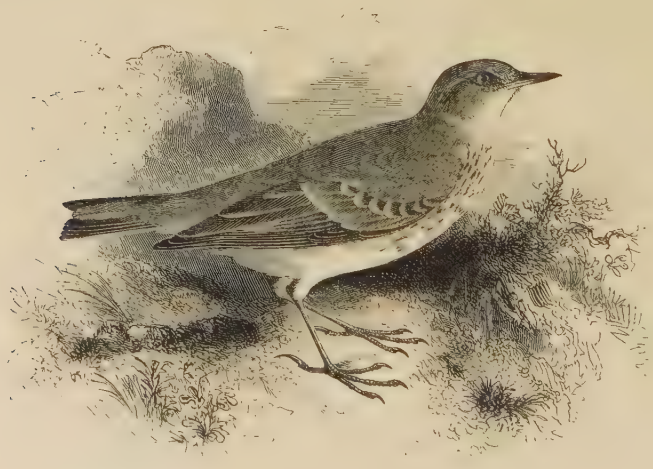
The Rock-Pipit is a resident species in the British Islands, where it is essentially a shore-bird; generally frequenting, during the breeding-season, those portions of the sea-coast which are of a rocky nature; although during autumn and winter it is found on salt-marshes and in the muddy estuaries where there is sea-weed. Along the east coast a migration southwards has been noticed in October. In Scotland and Ireland the bird is abundant in suitable localities.

The Rock-Pipit inhabits the Færoes, but has not been obtained in Iceland or Greenland. Along the western side of Scandinavia, and in Denmark, is found a race which, in the breeding-season, exhibits a vinous tint on the breast, approaching the hue of that part in the Water-Pipit; and birds belonging to this form have been distinguished as *A. rupestris*. Booth says that this used to arrive in Sussex in considerable numbers from March to April, though it never remained to breed; while it has also occurred on the east coast of Great Britain. Hancock said that he had an example shot from the nest at Chepstow, Monmouthshire, on April 18th 1854; several from Wales and also from Northumberland are in the British Museum, and Mr. J. H. Gurney has one which he obtained near

the Land's End. A woodcut of this form is given below. Our dull-coloured race is found in the Channel Islands and along the northern and western shores of France; while it is represented by the Scandinavian form to the eastward and in the Baltic.

The nest, generally in a clump of sea-pink, a grassy bank, or a crevice of the rocks on the sea-shore, is made of dry grasses and sometimes sea-tang; the 4–5 eggs are usually greenish-grey mottled with olive-brown, but I have seen reddish ones, like those of a Tree-Pipit: measurements ·8 by ·6 in. Two broods are produced in the season. The food consists of marine insects, flies, small molluscs and crustaceans, for which the bird may be seen searching among the heaps of sea-weed on the shore at low water.

The adult is olive-brown with darker streaks above; the under parts being dull ochreous-olive streaked with brown on the breast. At its best the plumage is much like that of the Water-Pipit in winter, but more olive, and the exterior tail-feathers have smoke-coloured outer webs, so that the under side of the tail seems nearly uniform brown. The young are more striated. Length 6·25 in.; wing 3·5 in.



Pycnonotidæ.—An example of the South-African Bulbul or "Gold-vented Thrush," *Pycnonotus capensis*, was shot near Waterford, Ireland, in January 1838, and skinned by the late Dr. R. Birkett. Considering the natural habitat of the bird, and the time of year, it is only reasonable to suppose that it had escaped from confinement.

THE GOLDEN ORIOLE.

ORIOLUS GÁLBULA, Linnæus.

This handsome bird is an annual spring-migrant to Cornwall and the Scilly Islands, where as many as forty have been seen in a single April, and it is an irregular but not infrequent visitor to the southern and eastern counties of England; while nests have been found—or the birds seen under circumstances which left little doubt that they were breeding—in Norfolk, Essex, Hertfordshire, Northamptonshire, Surrey, and especially in Kent. The most authentic instances have been at Dumpton Park, Isle of Thanet, where a pair of birds, protected by the proprietor, Mr. Bankes Tomlin, reared a brood (Harting, 'Our Summer Migrants,' p. 268) in 1874, and again in 1875. As a rule, however, the bright plumage of this bird attracts the attention of the destroyer, and the species is thus prevented from nesting with us annually, as it would otherwise do; for migrants generally return to the localities in which they were

hatched. In Scotland its occurrences have been few, and mostly in the southern districts; but one is recorded from Lerwick, Shetland, in October 1882, and one from Sanday, Orkney, in May 1893. For Ireland about forty are on record; the majority from cos. Waterford and Cork, but several from the north and west.

The Golden Oriole is a mere wanderer to the south of Sweden, and is only known to have visited Heligoland once in the last fifty years; but it breeds in South Finland, and in Russia rather further north than St. Petersburg. In the rest of Europe it is a common species during the summer, except in the eastern half of the Mediterranean basin, where it is better known as a migrant. Eastward it is found in Asia—north of the great mountain ranges—as far as Irkutsk; but in the Indian region it is represented by *O. kundoo*, in the adult male of which the black loral streak extends behind the eye, and the outer tail-feathers are entirely yellow. In North Africa the Golden Oriole breeds sparingly, but winters regularly; its migrations extending to South Africa. As a straggler it has been found in Madeira and the Azores; also in the Færoes, in May 1893; but Kjærbölling's assertion that one was picked up dead in the north of Iceland in *December* 1843, is incredible.

The nest is placed in, and suspended from, the horizontal fork of a small branch of some tree—frequently an oak or fir—in a shady grove or thick wood, and is made of strips of pliable bark, wool, slender grass stems &c., carefully woven together; the 4–5 eggs are glossy white, blotched with reddish-purple: measurements 1·2 by ·84 in. Although fond of shade, the Oriole is not a shy bird, and often breeds in the gardens of large towns. Its food consists of insects and their larvæ, the young birds being principally fed on caterpillars; but fruits, especially cherries, are also eaten. The French name 'Loriot' indicates the flute-like call of the male; the alarm-note being a harsh *khrr*.

Adult male: most of the plumage golden-yellow; lores black; quills and wing-coverts black, tipped and margined with yellowish-white; tail-feathers yellow at the tips and black at the bases, except the central pair which are mostly black; bill dull red; iris bright red; legs lead-grey. Length 9·5 in.; wing 6 in. I have tried in vain to obtain any proof of Blyth's theory that the mature female assumes the plumage of the adult male; she certainly has a blackish loral streak, but the yellow is far less intense than in the male, and the under parts are striated with greyish, while in less mature birds the upper parts are merely greenish-yellow. The young are duller in colour than the female.

THE GREAT GREY SHRIKE.

LÁNIUS EXCÚBITOR, Linnæus.

The Great Grey Shrike is a conspicuous and fairly regular visitor from the Continent to the British Islands in autumn and winter; while it has occasionally been observed in spring and even in summer, though there is no evidence that it has ever bred with us. It is naturally more frequent on the eastern side (especially in the Humber district, where it pursues the small migrants) than on the west; but though records are wanting from the Hebrides, it has occurred in Argyll and often in the Orkneys, while it was seen by Saxby in the Shetlands. In Ireland it is an irregular visitor in winter.

Many of the specimens obtained in winter have a white bar on the primaries only, the bases of the secondaries being black; whereas in the typical *L. excubitor* the bases of the secondaries are white, and the wing exhibits a double bar. The form with only one bar is the *L. major* of Pallas, and, as shown by Prof. Collett (Ibis 1886, pp. 30–40) it meets and interbreeds with *L. excubitor* in Scandinavia, typical examples of both races being actually found in the same brood, while intermediate individuals are not uncommon. Where the sexes have been determined by dissection the double-barred bird has generally proved to be a male and the single-barred a female. The typical *L. excubitor* breeds as far east as St. Petersburg, beyond which, and in Western Siberia, *L. major*

becomes the representative form. In the valley of the Yenesei the latter meets, but does not interbreed with, the whiter-winged *L. leucopterus*; the last ranging through Turkestan to Southern Russia, where, by its union with the typical *L. excubitor*, it seems to have produced an intermediate race, known as *L. homeyeri*. Space will not allow me to say more.

A Grey Shrike of some kind was seen in Iceland in 1845 by John Pell the falconer; and, as already shown, two forms occur and interbreed in Northern Europe, even up to lat. 70°. In winter both are forced to leave the high north, but in Central Germany the typical *L. excubitor* often remains throughout the winter, and comparatively few individuals of either form extend their migrations to the shores of the Mediterranean, although more numerous in the Black Sea region. The south-east of France and the Spanish Peninsula are occupied by a distinct and resident species, *L. meridionalis*, with vinous-coloured breast, while in Morocco and Algeria we find *L. algeriensis*; these two species seldom, if ever, crossing the Mediterranean. The Great Grey Shrike with the double white bar breeds in the north of France, Belgium, Holland, Germany, and Central Europe.

From the middle of May onward, the rather bulky nest of twigs, roots and moss, lined with wool, hair and feathers, is built usually at the top of a fir, or high up on the forked bough of some other tree. The 5–7 eggs are greenish-white, spotted and zoned with olive-brown and violet-grey: measurements 1·1 by ·8 in. The food consists largely of lizards, mice, shrews, birds up to the size of a Redbreast, frogs, and insects, especially beetles and grasshoppers; the indigestible portions being thrown up in pellets. Like other members of the family, this species impales its prey on long sharp thorns—whence the name of "Butcher-bird"; while its fondness for sitting, like a sentinel, on a lofty and conspicuous perch has earned for it the name of *excubitor*. The alarm-note is a sharp *shake, shake*; the call-note *truii*.

Adult male: forehead and a line over each eye white; lores, cheeks and ear-coverts black; upper parts pearl-grey, turning to white on the scapulars; wing-feathers black with white bases to the primaries, and—in the typical *L. excubitor*—also to the secondaries, which, with the inner primaries, are tipped with white; outer tail-feathers chiefly white; in the others the black at their bases increases until the central ones are black to their tips; under parts white; bill, legs and feet blackish. Length 9·5; wing 4·3 in. Female: duller, and the breast faintly marked with greyish semilunar bars. Young: dull greyish-brown above, and more barred on the under parts.

THE LESSER GREY SHRIKE.

LANIUS MINOR, J. F. Gmelin.

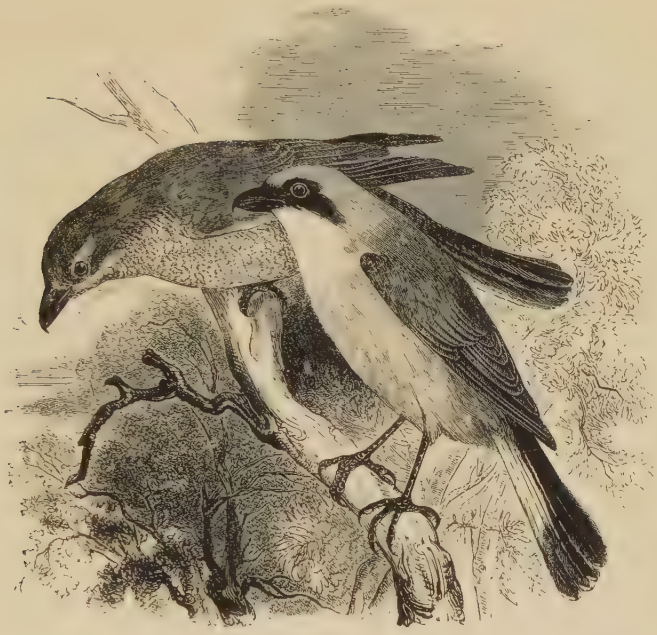
The Lesser Grey Shrike is an annual summer-visitor to the southern and central portions of Europe, and, on migration, it occasionally wanders to England. Early in November 1851, a female was killed in the Scilly Islands; in the spring of 1869 an adult was received by the Rev. Murray A. Mathew from Great Yarmouth, where another was taken in May 1875; on September 23rd 1876, a bird of the year, identified by the late Mr. Gatcombe, was taken alive near Plymouth; the Rev. M. A. Mathew has recorded (Zool. 1894, p. 345) the discovery of an adult, which had been shot at Heron Court in September 1842; and Mr. F. W. Frohawk states (Field, p. 839) that he identified one with binoculars in Mid-Kent on May 15th 1897.

It is doubtful if the Lesser Grey Shrike has occurred in the south of Sweden or in Denmark; while it is distinctly rare on passage in Heligoland, and only less so in Holland, Belgium and the north of France. Eastward, it is not uncommon along the southern shores of the Baltic, and has even wandered to Finland; while in the south it is generally distributed over Europe as far west as the

valley of the Rhone and Provence. It is common in Italy, Sicily, Dalmatia, Greece, Turkey, Asia Minor and Palestine, where it frequents the outskirts of cultivation on the lower grounds, but does not ascend to the elevated regions. In all the above countries it is only known in summer or on migration; and its winter-quarters appear to be in South Africa. In Asia it is found from Persia to Omsk in 57° N. lat., and eastward to Lake Zaisan in long. 84° E. It arrives in Germany between April 24th and May 7th, remaining till between August 18th and September 10th (Dr. Rey); but in south-eastern Europe it stays until October.

The nest, commenced about the middle of May, is generally placed at least ten feet from the ground, in an oak, wild pear or crab, and in Greece frequently in an olive-tree. It is composed of twigs, dry roots, aromatic field-flowers and green grasses, with a lining of wool, hair and feathers; the eggs, 5–7 in number, are pale bluish-green, blotched with olive-brown and ash-colour: measurements ·98 by ·77 in. Incubation, shared by both sexes, lasts fifteen days, and during the breeding-season the birds are very pugnacious, driving even Crows and Magpies from the vicinity of their nest. Like most Shrikes, this species is fond of perching on the topmost branch of a tree or other elevated position, whence it darts with rapidity upon its prey, sometimes gliding with extended wings for a short distance. Its food consists of beetles and other insects, seldom impaled on thorns, but devoured while held in the bird's foot: in the season, however, cherries, figs and other fruits are eaten. The note is described by Naumann as a harsh *kjäck*, *kjäck*, but the song of other birds is often imitated.

Adult male: forehead, line above the eye and ear-coverts black; cheeks white; nape and back grey, rump rather paler; wing-feathers black, slightly tipped with white on the secondaries, and with white bases to the primaries, forming a broad single bar; central tail-feathers black except at their bases; in the others the bases and tips are white, which gradually encroaches upon the black until the outer pair are entirely white; under parts white, suffused with a rosy blush on the breast and flanks; bill, legs and feet blackish. Length 8·5 in.; wing 4·6 in. The female and the immature male have less black on the forehead. The young bird—the upper figure in the woodcut—has no dark frontal band, and the under parts are dull yellowish-white, mottled with grey transverse lines. This species may be distinguished from all other Grey Shrikes by its wing formula; the 1st or bastard primary being very short, while the 2nd nearly equals the 3rd and longest primary.



THE RED-BACKED SHRIKE.

LANIUS COLLÚRIO, Linnæus.

This, by far the commonest of our British Shrikes, arrives in the south of England very early in May, and is irregularly distributed during the summer throughout the wooded districts of the southern and central portions, and in Wales. In Norfolk, however, it appears to be decreasing; in Lincolnshire and south-east Yorkshire it nests very sparingly; while northward it is of irregular occurrence, and is said to be rarer than in former years. In the south-east of Scotland it has occasionally been known to breed, as well as at Cambuslang, Lanarkshire, in 1893; but beyond the Forth it is rare, though migrants have been taken at Rattray Head, Dee, as well as on the Pentland Skerries. In the Shetlands Saxby says that he shot a young male on October 5th 1866, and that on *June* 9th (probably a slip for *July*) 1870, he saw a female Red-backed Shrike followed by three young birds already tolerably strong on the wing. In Ireland the only example on record was shot on August 10th 1878, near Belfast. For details respecting the distribution of this species, Mr. O. V. Aplin's paper (Tr. Norw. Soc. v. pp. 286–310) should be consulted.

In summer the Red-backed Shrike is found in Scandinavia and Northern Europe as high as about 64° N. lat., and southward throughout the greater part of the Continent; but in the south-west it appears to be rare, for Mr. Tait only once obtained it, with its nest, in the north of Portugal; while one shot by Mr. Abel Chapman on April 10th is the only specimen recorded from Southern Spain, though in the north the bird is found from Catalonia to Santander. Comparatively few, in fact, remain to breed in the basin of the Mediterranean, although the species is common in some parts on passage; but eastward it is found nesting on the high grounds of Hermon, Lebanon, and the Altai Mountains. In winter its migrations extend to Natal and Cape Colony.

In the second half of May the nest, large for the size of the bird, is placed usually about five or six feet from the ground, in a thick thorn-bush or strong hedge, and is made of stalks of plants, moss, and roots, with a lining of bents, wool and hair. The 4–6 eggs vary considerably, some having the ground-colour of a greenish-white, others of a yellowish-clay, and some of a salmon tint; they are spotted and zoned with brown, olive or lilac, or blotched with two shades of light red and violet-grey: measurements ·88 by ·65 in. Only one brood is reared in the season; the majority taking their departure in August in family parties, before their moult, though the capture of a young bird is recorded on November 11th 1869, when in pursuit of a Wren. This Shrike feeds on mice, lizards, beetles, humble-bees, wasps and other insects; it has been seen to strike down and carry off a Sand-Martin on the wing; while, like its congeners, it impales its prey on thorns, whence its trivial name of "Flusher," *i.e.*, Flesher. The alarm-note is a harsh *chack*, but the male has a rather sweet song, and is also a good mimic.

The adult male has the frontal band, lores and ear-coverts black; crown and nape grey; mantle chestnut-brown; wing-feathers brown edged with rufous; tail-coverts grey; tail-feathers (except the two central pairs, which are mostly black) white at their bases and black on the lower portion, with black shafts and narrow white tips; chin white; under parts rose-buff; bill, legs and feet black. Length 7 in.; wing 3·7 in. The female ordinarily has the upper parts and tail russet-brown with faint crescentic bars on the mantle, and the under parts buffish-white with greyish-brown semilunar bars; but mature females lose the bars, and even assume a plumage like that of the male. The young bird is whiter on the forehead, duller and less rufous-brown on the upper parts, more barred both above and below, and has iron-grey legs.

THE WOODCHAT.

LANIUS POMERÁNUS, Sparrman.

Although a common species during the breeding-season on the opposite shores of the Continent, the Woodchat Shrike only crosses the narrow seas at irregular intervals, and not more than about thirty-five examples are known to have been obtained in England during the last hundred years. The majority of these have been noticed in the southern and eastern districts, and generally at the time of migration; but there is evidence that the bird has nested twice near Freshwater in the Isle of Wight, while westward it has been known to occur as far as Cornwall. Northward, it has been identified on rare occasions up to Yorkshire, Lancashire, Cumberland and Northumberland; but there is no proof that it has visited Scotland or Ireland. Mr. O. V. Aplin published an excellent summary in 'The Zoologist' for 1892, pp. 345–352.

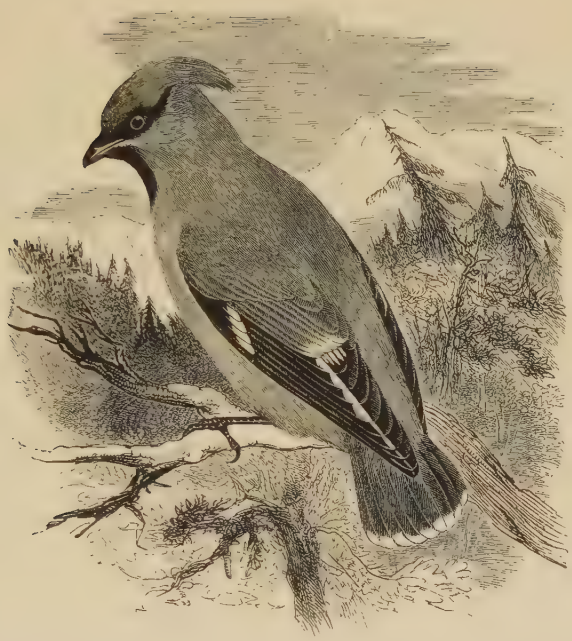
On the Continent the Woodchat breeds from Normandy northeastward as far as the line of the Baltic and the valley of the Vistula, beyond which it is of accidental occurrence; while southward it is generally distributed throughout Europe, and in the countries

on both sides of the Mediterranean is abundant. Even there, however, it is only a visitor; arriving about the end of March, or early in April, and leaving again between August and October. Eastward, it breeds in South Russia, Turkey, Asia Minor, Palestine and Persia; while in winter it occurs in Arabia, and down the East African coast to about 5° N. lat., also on the west side in the Canaries, and to the Gambia and the Gold Coast. Throughout North Africa it is abundant in summer, arriving from the southern side of the Sahara in March.

The nest, composed of a variety of materials and frequently adorned with the flowers of aromatic plants, is placed in the fork of a branch of almost any tree, without the slightest attempt at concealment. The eggs, usually 5 in number, are, as a rule, rather larger than those of the Red-backed Shrike, though similar in colour; the exception being the red variety, which is comparatively rare: average measurements ·92 by ·68 in. In its habits and food this species resembles other Shrikes, though insects of various kinds, especially grasshoppers and beetles, appear to form a larger proportion of its diet; it is also very fond of bathing. The note usually heard is a harsh *krah kack krah*; but the male has also a low and rather pretty song in spring, and shows great capacity for imitating the notes of other birds.

The adult male, represented in the lower figure, has an elongated white spot above each nostril; forehead, lores, ear-coverts, sides of neck and back black; crown and nape chestnut-red; scapulars conspicuously white; wing-feathers blackish, with white bases to the primaries, forming a single bar; coverts and secondaries tipped with buffish-white; lower back grey; tail-coverts nearly white above, turning to grey below; tail-feathers chiefly black, with white tips and with white outer webs and bases to the exterior pair; under parts buffish-white, darker on the flanks. Length 7·1 in.; wing 3·8 in. The female has all the colours less bright and the upper parts are tinged with rufous and buff. The young bird (the upper figure in the cut) is russet, streaked and mottled with darker brown and dull white on the upper parts, and with wide rufous margins to the quills; under parts much barred with brownish; bill yellowish-horn.

Vireonidæ.—Mr. Edwin Brown (Mosley's Nat. Hist. of Tutbury, p. 94 and p. 385, pl. 6) described and figured a male of the American Red-eyed 'Flycatcher,' *Vireo olivaceus*, which a Derby bird-catcher known as 'Hatter Dick' asserted that he had captured, with a female not preserved, at Chellaston in May 1859. [!]



THE WAXWING.

Ámpelis gárrulus, Linnæus.

For upwards of two centuries this beautiful bird has been known to visit our islands at irregular intervals, and sometimes, as in the winters of 1686, 1830–31, 1834–35, 1849–50, 1866–67, 1872–3, and 1892–93, in considerable numbers. As might be expected in the case of an inhabitant of the Arctic regions, the visits of the Waxwing have been more frequent to the northern and eastern portions of Great Britain than the western side; and although they have reached Argyll and Skye, they have not extended to the Outer Hebrides, while occurrences in the Orkneys and Shetlands have been rare. In Ireland, also, they have been few and far between. In England the Waxwing has been obtained in almost every county, including the south and the extreme south-west; and, on the spring migration, in Norfolk up to the first week in May. Its visits depend on the severity of the weather on the Continent, but it does not follow that the same winter should be rigorous in the British Islands.

The wanderings of the Waxwing are not known to extend in a south-westerly direction as far as the Pyrenees or the Spanish Peninsula; but from Provence, in the south-east of France, they

can be traced across the northern districts of Italy to Turkey. In summer the bird inhabits the Arctic regions, within the limits of tree-growth, in Europe and Asia; but it is very erratic, nesting for some seasons in large numbers in certain districts and then suddenly abandoning them. Its breeding-range extends across Bering Strait to Alaska and the Rocky Mountains, while in winter the United States—exceptionally as far south as 35° N. lat.—are visited. The representative species in temperate North America is the Cedar-bird, *A. cedrorum* (erroneously stated to have visited Great Britain), which is rather smaller, without any white or yellow on the wings. Our Waxwing occurs in winter in Japan and Northern China, but there the resident species is *A. phœnicoptera*, which has red markings on the wings and tail, but no wax-like tips.

The best account of the discovery of the breeding of the Waxwing, with which the name of Wolley will always be associated, has been given by his friend and sometime companion Professor Newton, in 'The Ibis' for 1861 (pp. 92–106), and in the 4th Edition of 'Yarrell's British Birds.' The first nests and eggs were found in Russian Lapland in 1856, since which a great many have been taken; and the breeding-range is now known to extend westward to the north-eastern portion of Norway, and southward to about 65° N. lat., on the shores of the Gulf of Bothnia. Open portions of the forest appear to be preferred; the rather large nest being placed on the branch of a spruce, Scotch fir, or birch, and mainly composed of the lichen known as tree-hair, on a platform of dead twigs. The 5–7 eggs are pale purplish-grey, blotched and streaked with several shades of brown and lilac: measurements ·97 by ·68 in. In summer the food consists of crane-flies and other insects; later, hips, juniper-mistletoe- and other berries are eaten, and are usually swallowed whole. The note of this bird is a low *cir-ir-ir-ir-re*.

Adult male: frontal band, lores, eye-region and chin black; forehead and sides of the crest chestnut-brown; general plumage light greyish-brown, shading into ash-grey on the rump and abdomen; wing-coverts black, tipped with white; secondaries spotted with white at the end of the outer web, and with tips to some 8 of the shafts like red sealing-wax; primaries black, with V-shaped yellow and white borders; tail blackish, terminated by a broad yellow band, and, in mature birds, with small red wax-like tips; under tail-coverts chestnut; bill, legs and feet black. Length 7·5 in.; wing 4·5 in. Female: rather duller, with (as a rule) fewer wax-like tips, and generally without the white edges to the inner webs of the primaries. Young: browner and without the black throat.

THE SPOTTED FLYCATCHER.

Múscicapa grísola, Linnæus.

The Spotted Flycatcher is often said to be one of the latest spring-visitors to our islands; nevertheless it has been observed exceptionally in our eastern counties as early as April 23rd, and at Carlisle one day earlier, while the usual date of its appearance in the south is about the first week in May; and even in the remarkably cold backward spring of 1888, I watched an evidently new arrival feeding in Kensington Gardens on the 1st of that month. During the summer this species is generally distributed throughout Great Britain, becoming rarer towards the north; although even there it has been found nesting in Sutherland, Caithness, and as far westward as Skye; occasionally in the Orkneys, which it sometimes visits in autumn, as well as the Shetlands. Mr. Ussher says that in Ireland it breeds in every county, even in the remote west.

The Spotted Flycatcher breeds as far north as Tromsö in Norway and Archangel in Russia; while southward it is tolerably abundant throughout Europe, nesting down to the northern shores of the Mediterranean; also on the African side, and in Asia Minor, Palestine, Persia, Turkestan, and Siberia as far as Irkutsk. In winter it visits India, Arabia, and Africa to Cape Colony. It leaves our islands and the northern portion of Europe in September, but in the south the abundance of insect food enables it to remain later; and in Asia Minor it has even been obtained late in November.

The nest is frequently placed among creepers or trellis-work, or in a hole in a wall or a tree; occasionally behind loose bark; often on a beam in a verandah or an out-building, whence the name of "Beam-bird"; and sometimes in such odd situations as the top of a door-hinge, the inside of a lamp or of a stove, &c. The structure, which is rather neat, and generally assimilated to its surroundings, is of moss, lichens, and a few strips of bark, warmly lined with wool, hair and feathers. In the eggs, which are 4–6 in number, the ground-colour varies from bluish-white to pale green, spotted and clouded with rusty-brown: measurements ·75 by ·55 in. Incubation begins about the third week in May, and is said to devolve entirely upon the female, who is fed by the male; two broods are not unfrequently produced in the season, the first being hatched early in June. There is evidence that the Spotted Flycatcher occasionally makes use of old nests of other birds, without alteration or addition (*Cf.* C. Wolley Dod, 'The Field' August 14th 1897, p. 307). This is one of the few species which nest in some of our London parks and gardens. Its food consists principally of insects, and the bird may often be seen sitting on a fence or branch, whence it darts upon some fly or gnat, returning with a graceful sweep to the spot it has just quitted. It can even manage a tolerably large moth, such as the Yellow Underwing, and it will dash at the Small White butterfly (*Pieris rapæ*), though it always declines that insect on closer acquaintance; while in the autumn it has been known to feed on berries, especially those of the mountain-ash, to which so many species of birds are partial. The song is very faint and low, and the call-note is a *zt-chick*.

The adult has the crown light brown, with dark streaks down the centre of the feathers; upper parts hair-brown, slightly darker on the wings and tail, and paler on the margins of the wing-coverts and secondaries; chin and under parts dull white, with brown streaks on the throat, breast and flanks; bill dark brown; legs and feet blackish. The sexes are alike in plumage. Length 5·8 in.; wing 3·3 in. The young are very much spotted; the feathers of the upper parts have pale centres with broad dark margins, and the wing- and tail-coverts are conspicuously tipped with buff, as are also the secondaries.

THE PIED FLYCATCHER.

Muscicapa atricapilla, Linnæus.

Although far less numerous than the preceding species, the Pied Flycatcher is a regular visitor to Great Britain, arriving in the latter part of April and returning southward in autumn. Large numbers have sometimes been observed during the first week in May on the Pentland Skerries, the Isle of May, and at Flamborough and Spurn in Yorkshire; while a return migration has been noticed in August and September. During the breeding-season this is a very local species, and although nests are said to have been found occasionally in some of the southern counties, its favourite haunts are rather in the west and north. In portions of Wales, such as Brecon, Carmarthen, Merioneth and Denbigh, as well as in the English counties on the Welsh border, it breeds annually; also in Lancashire, some parts of Yorkshire, Durham and Northumberland; but its head-quarters are in Westmoreland and Cumberland, where it appears to be on the increase. In Scotland this species is much rarer, but it has bred as far north as Inverness-shire, and has often occurred in the Orkneys

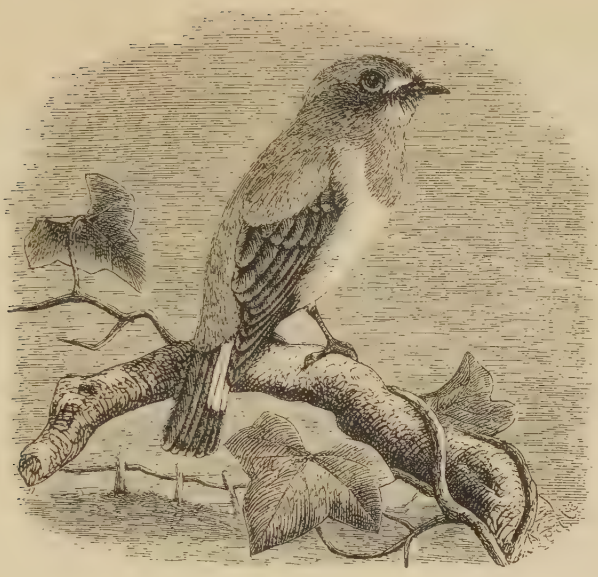
on migration. In Ireland an adult female was shot by Mr. R. Warren at Moyview, co. Sligo, on April 19th 1875, and since 1886 six examples have been killed by striking against the Tearaght, Fastnet, and Tuskar lighthouses (Barrington).

A wanderer to the Færoes, the Pied Flycatcher breeds regularly up to 69° N. lat. in Scandinavia, 65° in Finland, and about 60° in Northern Russia as far as the Ural Mountains; southward, in suitable wooded localities, throughout the greater part of Europe down to the centre of Spain; eastward, as far as Palestine, while it has been met with in Northern Persia. In Algeria it is said to be a resident; its migrations extending to the Canaries, as well as down the west side of Africa to the Gambia and on the east to Egypt.

The nest is generally placed in a fairly deep hole of a tree in thin or detached groves of oaks, birches, ashes, alders or aspens, the same area being resorted to in successive seasons; occasionally holes in walls are utilized. It is made of dry grass and roots, with a lining of hair; the 6–9 eggs, laid from the middle of May to the first week in June, are pale blue, with, occasionally, a few fine specks of reddish-brown: average measurements ·68 by ·52 in. Like its congener, the Pied Flycatcher feeds principally upon insects, but it does not so often catch them on the wing, preferring to take up its position at the extremity of a dead bough, whence it can dart upon them in the grass beneath; and it is frequently to be seen among the highest branches of forest trees (H. A. Macpherson). The note is *tzit-tzit-tzit*, *trui*, *trui*, *trui*.

The adult male in breeding-plumage has the upper parts black, with a white frontal band, conspicuous white outer margins to the secondaries, and a mottled band of grey and white across the rump; under parts white; bill, legs and feet black. Length 5 in.; wing 3·1 in. Less mature males show some white on the outer margins of the two exterior pairs of tail-feathers. After the autumn moult the upper parts are somewhat browner, but the white frontal patch is always present. In the female the frontlet, wing-patches and under parts are buffish-white, and the upper parts are olive-brown. The young bird in nestling-plumage is mottled on the back like the Spotted Flycatcher, but the white on the wings is very conspicuous in the male. The upper figure in the cut represents a male in breeding-plumage; the lower one a young male killed in September.

The White-collared Flycatcher, *M. collāris*, was figured by Gould in his 'Birds of Great Britain,' but there is no proof of its occurrence in England. The male has a white frontlet and collar.



THE RED-BREASTED FLYCATCHER.

MUSCICAPA PARVA, Bechstein.

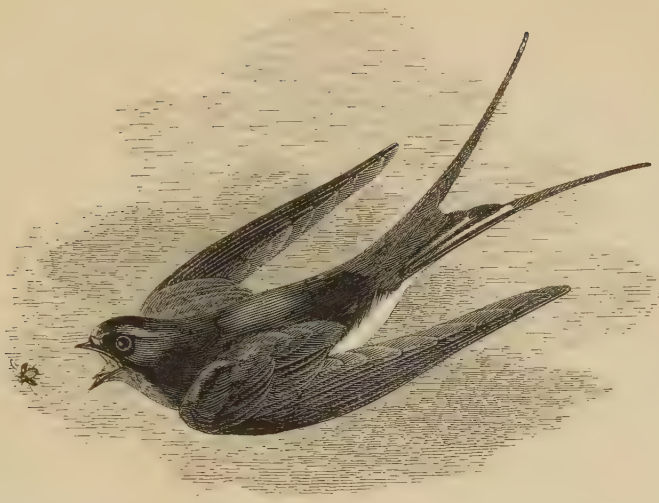
This small Flycatcher is one of those species which, like the Isabelline and Desert Wheatears, have their usual habitat to the east of our island, but in autumn and winter often migrate in a westerly direction. Its occurrence in England was first noticed near Falmouth, where two examples were seen for several days, and one—a female—was shot on January 24th 1863. In the October following, two were obtained in the Scilly Islands, and a third on November 5th 1865; on October 5th 1883, a young male was killed by Mr. G. Bolam in his garden at Berwick-on-Tweed; at Scarborough one was obtained on October 23rd 1889; in Norfolk, one at Cley on September 13th 1890 and another on October 4th 1894, and a third at Rollesby Broad on December 10th 1896. For Scotland the only record as yet is from the Monach lighthouse, off North Uist, on October 22nd 1893. Ireland furnishes one from the South Arklow light, off Wexford; one from the Tearaght light, and one from Tory Island; all three in October of various years.

As a wanderer the Red-breasted Flycatcher has been taken in Holland, Denmark, and off the south of Sweden, while a good many examples have been obtained in autumn on Heligoland. It breeds

sparingly in North-eastern Germany and in the St. Petersburg district; south of which, in Central Europe, it becomes more plentiful in summer, though very local. To the south-east of France it is an occasional visitor; and, from the accurate description of a careful observer, I have little doubt of its irregular occurrence, during winter, in the south-west of Spain. Though only a migrant to Italy, the islands of the Mediterranean, Greece, and the Black Sea region, it breeds in Southern Russia, the Caucasus and Northern Persia; while eastward, it occurs in Turkestan, and in Siberia as far north as Yeneseisk, and eastward to Lake Baikal, where it probably nests. In winter it visits India, as far south as Mysore, and in Africa its migrations extend to Nubia.

The Red-breasted Flycatcher arrives in Northern Germany in May (generally leaving early in September); and it appears to be partial to woods of beech and hornbeam, or those where beech and fir are mixed. The nest, built early in June, is rather deep and cup-shaped, neatly formed of moss and a few lichens, with a lining of dry grass and hair. It is usually placed in a hole in the trunk or some rotten branch of a beech-tree, but occasionally in a fork against the stem, from six to ten feet from the ground. In appearance the eggs, 5–7 in number, are intermediate between those of the Redbreast and the Spotted Flycatcher; having a very pale greenish ground-colour, with mottlings of rusty-brown: measurements ·63 by ·5 in. The young are hatched towards the end of June, and their food, like that of the adults, consists of insects, in search of which the birds soon leave their breeding-grounds in the forests for gardens and orchards in the vicinity. The habits of this species are lively and active, and in pugnacity, as in plumage, the male resembles our Redbreast. It has a pleasant song, resembling the syllables *tivi* several times repeated, while the alarm-note is a clear *pink, pink*.

The adult male in breeding-plumage has the cheeks ash-grey; crown and nape browner grey; upper parts in general wood-brown; tail (of twelve feathers) rather darker brown, with conspicuous white bases to the four outer pairs; chin, throat and upper breast reddish-orange; belly white; sides and flanks pale buff; bill brown; legs dark brown. Length 5·1 in.; wing 2·8 in. The female has no ash-grey on the head and her throat is merely reddish-buff. The young bird has a spotted nestling-plumage, and later the wing-coverts and secondaries become tipped with buff; otherwise it resembles the female. The male pairs in the immature plumage of the first year; the orange-red on the throat does not extend to the breast until the third moult.



THE SWALLOW.

HIRÚNDO RÚSTICA, Linnæus.

This well-known visitor has been known to arrive in the southern portions of our islands in some numbers by March 21st, while from April 10th forward it is generally distributed, although somewhat scarce and local in the extreme north, and decreasing in the north-west. It visits the Outer Hebrides, and will probably be found to breed there exceptionally, as is the case in the Orkneys and Shetlands. Emigration usually begins early in September, and most birds have left us by the middle of October, but there are many records up to the end of December, and a few in January and February; while one out of two laggard Swallows survived the exceptionally mild winter of 1895–1896, at Masham, Yorkshire.

The Swallow occurs in the Færoes in May, and has been known to stray to Iceland, South Greenland, Spitsbergen and Novaya Zemlya. It nests in Scandinavia up to 70° N. lat., but not quite as far as the Arctic circle in Russia; eastward and southward, its breeding-range extends over Europe, Asia (north, as a rule, of the great mountain ranges), and Northern Africa; while during winter it is found throughout the Indian region as far east as Burma and the Malay peninsula, and all over Africa. My space will not permit a discussion of its congeners, and I must refer my readers to Dr. R. B. Sharpe's excellent remarks (Cat. Birds Brit. Mus. vol. x., especially pp. 126–127);

merely observing that, by way of Asia, a connection appears to be established near Lake Baikal with the North American Swallow, *H. erythrogaster* of Boddaert, better known as *H. horreorum*. The latter, although found in Greenland, does not cross the Atlantic to Britain, nor has our bird been observed further west than about 180 miles beyond the Azores. In Egypt there is a resident subspecies, *H. savignii*, with the under parts nearly as ruddy as the throat.

The nest was, no doubt, originally built in caves, and even now these are sometimes resorted to, but at the present day it is usually placed about human habitations or buildings of some kind ; often it is in chimneys, though almost any ledge or projection will serve ; while exceptionally it has been found in forked boughs of trees, and in even more remarkable sites. Mud, with a mixture of short straws, and a lining of fine grasses and feathers, is the material employed, and the structure has generally the shape of half a saucer ; the eggs, laid from May 18th onwards, and usually 4–6 in number, are white, blotched and speckled with several shades of grey and brown : measurements ·82 by ·54 in. Two broods are produced in the season, but I have known even three hatched by the same pair of (marked) birds, although I believe that the last brood, still in the nest on October 23rd, was not reared. To the extreme south of Europe the Swallow returns by the end of January, and below Seville I found many nestlings by April 16th. With us large flocks collect together in autumn, prior to their departure for the south, and are then conspicuous on roofs, trees and telegraph-wires, especially in the vicinity of water. The food consists mainly of gnats and crane-flies in spring, with small beetles in summer. The soft, low twittering song can hardly be described ; the alarm-note may be syllabled as *feet-a-feet, feet-a-feetit.*

The adult male in spring has the forehead and throat dark chestnut ; crown, upper parts and pectoral band deep metallic blue ; quills dark bluish-green ; tail-feathers bottle-green, with white patches on the inner webs of all except the central pair, the long outside streamers often two inches longer than the next ; belly and under wing-coverts buff ; under tail-coverts pale chestnut ; bill, legs and feet black, and very small. Length 7·5 in. ; wing 4·9 in. The female has the tail shorter, the forehead less chestnut, and the under parts whiter. The young are duller in colour ; the frontlet and throat are pale chestnut, and the spots on the tail are tinged with rufous. The moult takes place in winter, and I noticed that the birds which were breeding in the south of Spain in April had not then attained the warm buff tint on the under parts, which I observed later.

THE MARTIN.

CHELÍDON ÚRBICA (Linnæus).

The Martin, sometimes called the House-Martin to distinguish it from the Sand-Martin, usually arrives a few days later than the Swallow, and is of general distribution during the summer throughout the British Islands. In the north, however, it is rather local and even of irregular occurrence, while in some parts of the north-west it has become decidedly scarcer of late years. It seldom visits the Outer Hebrides, and only breeds sparingly in the Orkneys and Shetlands. In Ireland it is local, and less common than the Swallow. By the middle of October the bulk of the Martins have left this country, but considerable flocks have been noticed up to the middle of November, and birds—generally young—have been obtained in December.

The Martin is a rare visitor to Iceland, but in the Færoes it is not uncommon on the spring migration. In Scandinavia it breeds as far north as about lat. 70°, but in Russia its range in that direction is less extensive; while eastward our bird is not known beyond the valley of the Ob, its place being taken in Siberia by *C. lagopoda*, a species with a shorter and squarer tail and entirely white upper tail-coverts. In the Himalayas the representative species, *C. cashmiriensis*, is smaller, with shorter and less deeply-forked tail; but our bird is found during the breeding-season in North-western India, Turkestan,

Persia, Palestine, Asia Minor, and throughout Europe, except in the Basque Provinces, where, for some mysterious reason, it is almost unknown. It also breeds abundantly in North Africa; visits the Canaries and Madeira; and probably winters in Central Africa, inasmuch as examples have been obtained in Abyssinia on the east side, and off the coast of Guinea on the west.

The nest, constructed of mud, is not left open at the top like that of the Swallow, but is shaped like the quarter of a cup, and is fixed against a wall, bridge or rock, beneath eaves or other projections; the hole for entrance being in the top or corner of the side. On rocky coasts, and in mountain districts, especially those where limestone prevails, the nests are often placed in large numbers against the cliffs; while I have also found House-Martins nesting well inside crevices, in Wales (near Fishguard), the Pyrenees, and in Norway. Upon a lining of pieces of straw and feathers, the 4–5 eggs, of a pure white, are deposited about the last week in May: measurements ·79 by ·52 in. Incubation lasts a fortnight, and two, or, occasionally three, broods are produced in the season, for young have been found in the nest up to October 17th; the same spot being occupied year after year. The food of the Martin consists entirely of insects, and it is a pity that this beneficial bird should be dispossessed and driven from its home, as it often is, by the detrimental House-Sparrow. This has lately happened to several colonies in the West-end of London. The note is a low twitter, sounding like *spritz*.

The adult has the upper part of the head, nape and back glossy blue-black; rump white, as are the upper tail-coverts, except those next the tail, which are bluish-black; wings and the forked tail sooty-black; under parts white, as are also the feathers which cover the legs and toes; bill black. Length 5·3; wing 4·25 in. The sexes are alike in plumage. The young bird is sooty-brown above, with hardly any gloss; the rump and under parts are dull white; the tail is shorter and less forked; and some dark feathers on each side of the neck form an incipient collar.

An American Purple Martin, *Progne purpúrea*, said to have been shot near Kingstown in 1839 or 1840, is in the Museum of Science and Art, Dublin. An American Tree-Swallow, *Tachycinéta bícolor*, said to have been killed at Derby in 1850, is now in the Museum at Norwich. There are no other instances of the occurrence of these species in Europe; and, even assuming the correctness of the statements, the birds had probably received "assisted passages."

THE SAND-MARTIN.

CÓTILE RIPÁRIA (Linnæus).

The Sand-Martin, the smallest member of the family that visits our islands, is one of the earliest species to arrive in spring, often making its appearance by the third week of March. It is also one of the first to quit our shores, its southward emigrations commencing in August and terminating in October; but, exceptionally, it has been noticed in various localities up to the end of November. Owing to the nature of its haunts it is somewhat locally distributed throughout the British Islands, but upon the whole it is widely diffused, extending regularly to some of the Outer Hebrides and breeding sparingly in Orkney; while in 1887, Mr. A. H. Evans ascertained that it nested near Lerwick in the Shetlands. In Ireland, according to Mr. R. J. Ussher, it is more widely distributed than the House-Martin.

In the Færoes and Iceland the Sand-Martin has not yet been obtained, but on the Continent it is generally distributed from 70° N. lat. to the Mediterranean in summer; while it also breeds sparingly in the northern districts of Africa, and abundantly in Egypt and Palestine. Eastward, it is found across Asia to Kamchatka; on the American continent it breeds in large colonies in Alaska and up to 68° N. lat. on the Mackenzie River; while it can be traced to

Newfoundland. In winter it visits Mexico, Central America and the valley of the Amazon; and—in the Old World—China, the Indian region, and South-eastern Africa down to Zanzibar. Occasionally it wanders to the Canary Islands.

Early in May it makes a nest, generally in banks—whether natural, such as earth-cliffs and chalk-holes by the sides of rivers and lakes, or artificial, such as railway-cuttings, sandpits and gravel quarries—or even in huge heaps of sawdust. In such situations galleries slanting slightly upwards are bored, and, in a somewhat wider chamber at the end, the nest is formed of a little dry grass with an abundance of feathers. The eggs, usually 4–6 in number, are pure white: average measurements ·7 by ·48 in. In some parts of Norway the Sand-Martin burrows into the turf-covered roofs of the peasants' houses; while in this country holes in old walls are not unfrequently utilised, and Mr. R. Warren found nests in the crevices of a ruin on Lough Cullen. Small colonies are often ousted by the overbearing House-Sparrows, but where large numbers congregate, they are able to defy intruders. Two broods are generally produced in the season, and after leaving their flea-haunted nest, the young betake themselves to the vicinity of water, where they feed all day upon the gnats and other insects found in such localities, and roost at night in large numbers in the reed-beds and plantations. The male has a low twittering song, but the alarm-note is rather harsh.

The adult male is hair-brown above, slightly darker on the crown and lighter on the rump; wings and tail blackish-brown; under parts white, except a mottled brown pectoral band; bill black; legs dark brown, with a tuft of pale buff-coloured feathers above the hind toe. Length 4·8; wing 4 in. The female has a rather narrower band across the throat. The young bird, shown in the upper figure of the woodcut, has the feathers of the upper parts tipped with dull white, and the under parts tinged with buff.

In the rocky gorges and mountainous regions of Central and Southern Europe many of my readers may have noticed a rather larger bird, resembling our Sand-Martin in the colour of its upper parts, but displaying white spots on its outspread tail. This is the Crag-Martin, *Cótile rupéstris*, a bird which has not yet been found in the British Islands, but which may possibly stray to our shores, as it breeds regularly no further off than Switzerland and the Pyrenees. This species has not the small tuft of feathers on the metatarsus, and its eggs are spotted, like those of the Swallow.

THE GREENFINCH.

LIGURÍNUS CHLÓRIS (Linnæus).

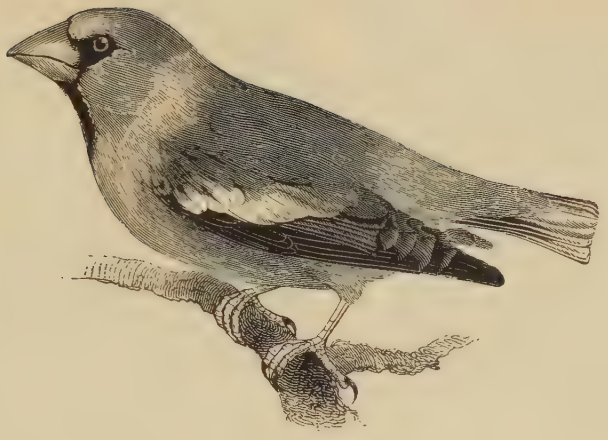
The Greenfinch, sometimes called the Green Linnet, is a common and well-known resident species in the cultivated and wooded districts of Great Britain and Ireland. In the bleaker portions of our islands it is, naturally, less abundant; but it has spread with the increase of plantations of late years, and even in some of the Orkneys it now breeds freely, although to the Shetlands, as well as to the Outer Hebrides, it is still a mere visitor, chiefly in autumn. Large flocks annually arrive on our east coast in October.

To the Færoes the Greenfinch is only a rare wanderer; but south of 65° N. lat. in Norway and 60° in the Ural Mountains it is more or less sedentary in suitable localities throughout Europe. In Spain, Northern Africa, Palestine and Asia Minor, our comparatively large and dull-coloured bird is only observed during the winter months, and the race which breeds is distinctly smaller, and—especially on the forehead—more brightly coloured. Extremes of this form have been named *L. chloroticus*; while intermediate examples have been

styled *L. aurantiiventris*. Eastward, the Greenfinch is found as far as the north-west of Persia and Turkestan; but in Eastern Siberia, China and Japan, the representative species is *L. sinicus*, with greyish head, brown mantle, and yellowish-brown under parts. As a straggler the Greenfinch has occurred in Madeira, and as an introduced species in the United States.

The nest is placed in hedges, shrubs and evergreens, often in tolerably tall trees or amongst ivy, and occasionally in such unusual situations as a cavity in a tree or a hollow at the top of a gate-post. It is commonly a rather loose and slovenly structure, built (without much attempt at adaptation to the surroundings) of coarse fibrous roots, moss and wool, with a lining of finer materials, hair, and feathers. The eggs, 4–6 in number, are pale greenish-white, blotched, spotted, or even zoned with reddish-brown and purplish-grey: measurements ·83 by ·55 in. Not unfrequently several nests may be found in proximity. The first laying takes place at the end of April or early in May, and two broods are often reared in the season. The young are fed upon caterpillars and other insects, and soft seeds; later, berries of various kinds are also consumed; and in autumn flocks may be seen on the stubbles. The song is poor, while the call-note is a long-drawn *twe e-eer*, reiterated by the male as he sits on the top of a bush. In confinement the Greenfinch is easily domesticated, and shows a moderate capacity for learning the songs of other birds, while it interbreeds with several species of Finch; also, in a wild state, with the Linnet.

The adult male has the lores dusky-black; forehead greenish-yellow; a golden-yellow stripe over each eye; crown, neck and mantle olive-green, turning to yellow on the rump; secondaries brownish-grey, darker on the shafts and inner margins; quills greyish-brown with yellow outer webs; central tail-feathers and terminal portion of the rest blackish-brown with greyish edges, the basal portions yellow; under parts greenish-yellow, greyer on the flanks; bill dull flesh-colour, darkest at the tip; legs and feet pale wood-brown. Length of the large form about 6 in., and wing 3·5 in.; but a brilliant specimen of the smaller race, now before me, measures rather less than 5 in. and the wing hardly 3·2 in. The female is somewhat smaller and far less brightly coloured than the male, the head and mantle being greenish-brown with darker striations; the outer webs of the primaries barely edged with yellow; and the under parts generally dusky, with very little yellow. The young are dull brown, tinged with yellow, and spotted and streaked with darker brown.



THE HAWFINCH.

COCCOTHRÁUSTES VULGÁRIS, Pallas.

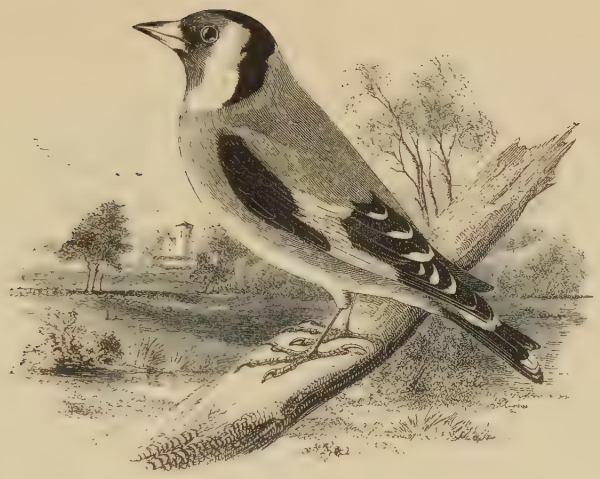
The Hawfinch is a bird of shy and retiring habits, and unless attention be attracted by the shrill and—when once heard—unmistakable whistle, its presence may easily escape detection. There can be no doubt it has been steadily increasing in numbers during the last fifty years, and, though still local in distribution, the nest has been found in every county in England, excepting Cornwall, even as far north as the Lake district and Northumberland, though there the bird becomes rare. From Worcester and Hereford it has now spread to Brecon, where it breeds, but in the rest of Wales it is still uncommon. In spite of the extension of the metropolis, the Hawfinch has not quite ceased to nest in Middlesex, and it is comparatively common in some parts of Norfolk, Suffolk, Essex, Herts, Bucks, Berks and Surrey, while in Kent it may almost be called abundant. In Scotland, a young bird obtained near Edinburgh was, in the opinion of Mr. W. E. Clarke, bred in the neighbourhood, and the species has been taken in winter in the Solway district, while said to have been seen in Sutherland. To Ireland this Finch is only a rare and irregular wanderer in winter, and has never been obtained at any of the lighthouses.

Even to the south of Scandinavia the Hawfinch is only an occasional visitor, but in Russia it has been found nesting as far north as the St. Petersburg district Over Central Europe, in suitable

localities, it appears to be generally distributed, although nowhere very common; but in the south, from Spain to Turkey, as well as in Asia Minor, it is a more abundant resident species. In North-western India we find Dr. R. B. Sharpe's paler species, *C. humii*, while a slightly different subspecies, *C. japonicus*, inhabits Eastern Siberia, North China and Japan. In Morocco the Hawfinch is rare; but it breeds sparingly in Algeria, occurs in Tunisia, and has wandered to Egypt and Palestine.

The nest, built at the end of April or early in May, is generally placed in trees overgrown with grey lichens, such as old hawthorns, apple- and pear-trees; the horizontal branches of oaks, beeches and spruce firs, the heads of pollarded hornbeams, and holly bushes are also selected. It is a rather flat structure, built of twigs mixed with grey lichen, and lined with fine roots and a little hair. The eggs, 4–5 in number, are pale olive- or bluish-green, spotted and streaked irregularly with dark olive- and greyish-brown: measurements ·98 in. by ·72 in. Only one brood is reared in the season, but if the first nest is interfered with, another is built. The young are fed largely on caterpillars, but otherwise the food of this species consists largely of peas, the kernels of cherry-stones (which are crushed by the powerful bill), and of the seeds of the hornbeam and other trees, beechmast, haws and similar berries. In winter small parties and even flocks are formed, and a certain amount of movement—hardly to be called migration—takes place in England. The song is short and poor; the call-note is a prolonged whistle repeated four times.

The adult male in spring has the lores, a narrow frontal line connecting them, and also the throat, deep black; head orange-brown; nape grey; back dull brown, paler on the rump and tail-coverts; upper wing-coverts blackish, followed by a line of white which turns to brown on the secondaries; quills black, with white patches on the inner webs, and with steel-blue tips, which, from the fifth inwards, are jagged; tail-coverts orange-brown, and very long; tail-feathers black at the bases and dark on the outer webs, their ends white; under parts vinous-brown; bill dull black at tip, leaden-blue at the base; legs and feet flesh-colour. Length 7 in.; wing nearly 4 in. Female: less orange-brown on the head and duller in colour. In winter the bill in both sexes is pale horn-colour. The young bird has the head and cheeks yellowish-brown; mantle mottled brown; under parts dirty white, spotted and barred with dark brown; throat white, tinged with yellow; bill olive. By August black feathers begin to appear on the throat.



THE GOLDFINCH.

CARDUÉLIS ÉLEGANS, Stephens.

Owing to the arts of the bird-catcher, as well as to improvements in cultivation which have done away with many of the tracts formerly covered with thistles and other weeds, the Goldfinch has undoubtedly decreased in numbers during the last half century; nevertheless, the Wild Birds' Preservation Act, and perhaps agricultural depression, have somewhat operated in its favour during the past twelve years. Though local, and principally to be found during the breeding-season in the neighbourhood of gardens and orchards, it still nests in every county in England—not excepting Northumberland, where it has bred at Greenhead; while it is tolerably common along the Eden valley in Cumberland, although in the northern and western counties a comparatively rare bird. Beyond the Border it has almost disappeared from the Lothians, owing to the influence of high farming; but I am informed by Mr. R. Service that, after a marked diminution, it is again on the increase in the Solway district. It is now very scarce beyond the Great Glen; but on one occasion it has nested in the south of Skye, while as a straggler it has occurred in Mull and Eigg (Macpherson), as well as in the Orkneys. In Ireland it is widely distributed. A large proportion of the Goldfinches which inhabit England during the summer, as

well as flocks which have arrived from the Continent, cross the Channel in October, and return northward in April.

South of about 64° N. lat. in Norway, and 60° in the Ural Mountains, the Goldfinch is found breeding throughout Europe, although rare in the north; while in Spain and other southern countries it is exceedingly abundant and very bright in colour. It is a resident in Madeira, the Canaries and Northern Africa; visits Egypt in winter; and ranges eastward to Persia. There, and generally to the east of the line of the Urals, we find a larger form, known as *C. major*, with nearly white rump and flanks; and in Southern Siberia this meets and interbreeds with *C. caniceps*, which has no black on the crown and nape, but more white on the wing.

The compact nest—like that of the Chaffinch, but smaller, neater, of finer materials, and without the conspicuous lichens—is built about the middle of May, and is often placed in a fork of a fruit-tree or a horse-chestnut; sometimes in a hedge or evergreen shrub. The 4–5 eggs are greyish-white, spotted and streaked with purplish-brown: measurements ·66 by ·5 in. Two broods are produced in the year, and young have been found in the nest in September. At first they are fed with insects and their larvæ: but later the principal food consists of seeds of the thistle, knapweed, groundsel, dock and other plants. The song of this favourite cage-bird is well known; its call-note is a sharp *twit*. In captivity it breeds with several other species of Finch.

Adult male: feathers at the base of the bill and lores black; forehead and throat glossy crimson-red; cheeks and lower throat white; crown and the parts behind the cheeks black; on the nape a narrow line of white; back wood-brown; wings black, tipped with white on the inner quills and barred with bright yellow; tail-coverts white with black bases; the three outer pairs of tail-feathers black with white central spots, the remainder black, tipped with white; breast white, banded with brownish-buff, with a yellow tint posteriorly; flanks buff; belly and under tail-coverts white; bill whitish with a black tip; legs and feet pale flesh-colour. Length 5 in.; wing 3 in. In less mature males, only the 1st and 2nd pairs of tail-feathers have white spots. The female has a more slender bill and less crimson on the throat. The young, known as "grey-pates," "bald-pates" and "branchers," are greyish-brown on the upper parts; the wing tips are buffish-white, and only the outer pair of tail-feathers show the white spot. Some birds, called "cheverels," have the throat white; examples from Morocco have the back isabelline, and there are several other varieties.

THE SISKIN.

CARDUÉLIS SPÍNUS (Linnæus).

The Siskin, or Aberdevine as it has been called since the time of Albin, is principally known in England and Wales during winter and on its migrations to and from its more northern breeding-quarters; but there is evidence that it has bred, exceptionally, in Surrey, Sussex, and perhaps some other southern counties. In the north, where fir-woods are more abundant, it has nested in the county of Durham; while a few pairs breed regularly in some parts of Cumberland, and in the Solway district in Scotland. From Perthshire northward, it nests freely in some of the old fir-wood districts, and suitable localities up to Caithness; in East Sutherland it is said to be resident, and it breeds in Ross-shire; but on the western side generally it is only a somewhat rare winter-visitor, and has not yet been traced to the Outer Hebrides nor the Orkneys, although it occurs on both passages in the Shetlands. In Ireland it nests in many counties where pine-trees flourish, especially in Wicklow and Waterford; while in winter it is tolerably common.

In Northern Europe the breeding-limit of the Siskin coincides with that of conifer-growth; and southward, the bird nests in some of the fir-woods of Germany, South Holland, France, Switzerland, Northern Italy as far as the vicinity of Florence, Austria, and

the Caucasus; while it is found on migration down to the Mediterranean, and in winter sometimes visits Morocco, Algeria and Tunisia. Eastward it has been met with in Asia Minor, Northern Persia, and across Siberia to Northern China and Japan, being a favourite cage bird in the last country. In the Indian region, from Kashmir to Western China, the representative species is *C. spinoides*.

The Siskin generally produces two broods in the year, and St. John found well-fledged young near Nairn as early as April 26th. Firs of some kind or birches are the trees usually selected, and the nest, while occasionally placed at the top against the main-stem, is generally high up and at the end of a long lateral branch; yet sometimes it is built in gorse and other bushes. Fir twigs, fine roots and green moss are the materials employed to form a tolerably neat structure, which is lined with horsehair and a few feathers. The eggs, usually 5 in number, are slightly smaller than those of the Goldfinch, rather bluer in ground-colour, and speckled with dull lilac and reddish-brown: measurements ·65 by ·47 in. Siskins not unfrequently breed in captivity, but there is a difficulty in rearing the young, as in the earlier stages they appear to require *Aphides*, such as infest the leaves and green shoots of the alder. Later in the year, beechmast, and seeds of rag-weed and other plants are eaten. The call-note is loud and clear, resembling the word *zeisig*, whence the bird's German name; the song is pretty and varied.

The adult male has the crown, chin, and lores black; cheeks and ear-coverts dusky-greenish; above and behind each eye to the nape runs a broad streak of yellow, which unites with the same colour on the upper breast; feathers of the mantle greenish-olive, with dusky shaft-streaks; rump yellow; the central pair of tail-feathers dusky-black, the others black near the tips, yellow at the bases and on the inner webs; wing-coverts black, tipped with yellow; quills blackish, with yellow margins and bases forming two irregular bars; belly white; flanks yellowish, streaked with black; bill pale brown; legs dull brown. Length 4·6; wing 2·8 in. In autumn the colours are duller, and there is hardly any black on the chin. The female has dusky streaks on the crown, and very little yellow on the rump, wings and tail; the under parts are yellowish-white, with ash-brown stripes. The young bird is still duller and greyer in appearance.

An example of the North American *Spinus tristis* is said to have been taken on Achill Island in September (Zool. 1894, p. 396).

THE SERIN.

Serínus hortulánus, K. L. Koch.

The occurrence of the Serin in England was first recorded from the neighbourhood of Portsmouth (Naturalist, 1853, p. 20), by the Rev. W. Hazel; and subsequently, about eight examples have been obtained by bird-catchers in Sussex—most of them near Brighton; one or two near London, two in Norfolk, one in Somersetshire, and one in Devon; while Mr. G. C. Swailes saw and heard a male singing near one of his aviaries containing Serins, outside Beverley on April 26th 1897. In Ireland one was taken near Dublin, on January 2nd 1893. Almost all of these were noticed either in spring or in autumn; and although the Serin is a very common cage-bird abroad and likely to be imported, yet, considering that it breeds no further off than Luxemburg, it is probably a genuine visitor to our shores.

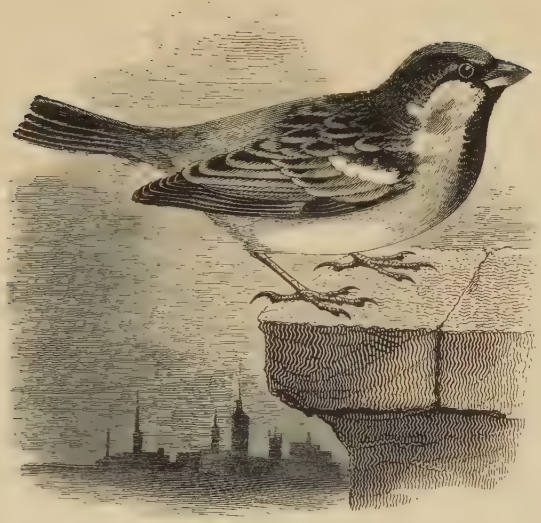
In Holland, where the Serin was formerly rare, it is now captured almost every autumn (Blaauw); it has wandered to Schleswig; at least a dozen examples have been obtained on Heligoland; and its northern breeding-range extends to Darmstadt and the upper portions of the Rhine and Moselle valleys. Southward, it is found—generally at the foot of mountains skirting the plains—throughout the greater part of Europe, and on both sides of the Mediterranean; in Asia Minor it is resident and extremely abundant, and it has been traced to Sinai and Egypt. It visits the coast of Palestine in winter, but in the higher regions of that country the representative species is *S. canonicus*, a larger, paler and much yellower bird; while in the Lebanon, Taurus and other mountain ranges, reaching

to North-western India, is found *S. pusillus*, the male of which has a red forehead and black throat and cheeks. The Serin has been introduced in the United States.

The nest, placed in the fork of some tree or about breast-high in a bush, is built of fine roots, bents, lichens and grey moss, with a lining of softer materials. The 4–5 eggs are pale greenish-white, with light reddish-brown spots and a few darker blotches: measurements ·61 by ·47 in. The food chiefly consists of various kinds of seeds. The song resembles the word *zi-zi* often repeated, and a flock of birds settled in a tree produces a peculiar buzzing or almost hissing sound.

Adult male in breeding-plumage: forehead, a line over each eye, rump, throat and breast, bright yellow; cheeks and upper parts olive, with dark brown streaks; greater wing-coverts and secondaries edged with dull white; quills and tail brown, margined with pale yellow; belly white; flanks boldly streaked with brown; bill horn-brown; legs pale brown. Length 4·5; wing 2·7 in. Female: much less yellow and more striated. In winter both sexes are duller in colour; while the young in their first autumn exhibit hardly any yellow tint.

Examples of the subspecies *Serinus canaria*, peculiar to the Canaries, Madeira and the Azores, have been taken in England, and, although cages-full are known to be imported, there are persons who wish to believe that the individuals captured are not escaped birds, but genuine wanderers from a warm to an inhospitable climate! The aforesaid Rev. W. Hazel has stated (Nat. 1853, p 20) that the African *Serinus icterus* (*Crithagra chrysopyga* of Swainson), was taken near Portsmouth. Mr. Langton has recorded (Zool. 1886, p. 490) that, among the rarities obtained by the late Mr. Swaysland of Brighton, there was a "Citril Finch" taken alive on October 14th; but on examination the bird proved to be a freely-imported South African species, *Serinus canicollis*, another specimen of which has since been captured. Montagu mentioned an example of the American *Cyanospiza ciris*, taken near Portland in 1802, which he, with his accustomed good sense, naturally presumed to have escaped from confinement. Another American species, the "White-throated Sparrow," *Zonotrichia albicollis* (which is really a Bunting), having been obtained near Aberdeen, was included and figured by the late R. Gray in his 'Birds of the West of Scotland.' A second example has been taken near Brighton; and Mr. Cordeaux has recorded (Zool. 1893, p. 149) an adult male shot in Holderness, on February 13th, while feeding with other "pensioners."



THE HOUSE-SPARROW.

PÁSSER DOMÉSTICUS (Linnæus).

The House-Sparrow is generally distributed throughout Great Britain and Ireland wherever human habitations are to be found, except near some of the high moorland farm-houses and a few of the most elevated villages. In proportion as land is brought under cultivation, the Sparrow makes its appearance and rapidly increases, so that it is now established in the Inner Hebrides, the Orkneys, the Shetlands, and other places where it was formerly unknown.

As yet the House-Sparrow does not appear to have reached the Færoes, but in Scandinavia it occurs, in suitable localities, up to and a little beyond the Arctic circle; while eastward it can be traced across Russia, and along the inhabited portions of Siberia to Daüria; but not to Japan or China. A smaller and paler race (known as *P. indicus*, but not considered by the best authorities as entitled to specific distinction) inhabits Cochin, Siam, Burma and the Indian region, as far west as Southern Persia; whence gradations lead back to the typical bird, which is found almost all over Europe where grain will grow. In Italy, and on the island of Corsica, the representative species is *P. italiæ*, the male of which has the crown chestnut instead of grey; but although this species has been found for a considerable distance up the Brenner Pass, it has not yet infringed upon the territory of our bird, which, on the northern

side, reaches Innsbruck. In Sardinia, Sicily and Malta we find only *P. hispaniolensis*, also with a chestnut head, but much blacker on the throat and flanks. In Spain our bird keeps to the towns, and does not seem to clash with *P. hispaniolensis*, which there breeds in the woods, often occupying the foundations of inhabited nests of large birds of prey. Westward, the House-Sparrow occurs in Madeira, but apparently not in the other Atlantic islands. In Africa it is found from Morocco to the Albert Nyanza; while it swarms in South Arabia and at Aden. Introduced, like the rabbit, through officious ignorance, in Australia, New Zealand, and the United States, it has become such a curse that special legislation has been loudly invoked for its destruction.

The well-known nest, of straw, hay, dry grass and all sorts of odd materials, thickly lined with feathers, is placed indifferently in trees, among climbing plants, under the eaves of roofs, in the spouts of water-pipes, in holes in walls, and those in banks originally excavated by the Sand-Martin; in fact almost everywhere. The 5–6 eggs are pale bluish-white, blotched, speckled or suffused with ash- and dusky-brown and black: measurements ·9 by ·6 in. Three broods are frequently reared in the season. The young are fed upon caterpillars and the larvæ of various destructive insects, and in this respect the Sparrow is beneficial; but there is abundant evidence that during the greater part of the year an enormous amount of grain &c., is devoured, and the consensus of opinion appears to be that, while extermination is not advocated (nor practicable), the increase of this species should be checked. By deferring the destruction of the insect-fed young until they are fledged, the greatest amount of usefulness may be extracted from this bird, which causes incalculable harm by dislodging the House-Martin and other insectivorous species.

Adult male: lores black; a narrow streak of white over each eye; crown, nape and lower back ash-grey; region of the ear-coverts chestnut; back chestnut-brown streaked with black; wings brown, with a bar of white on the middle coverts; tail dull brown; throat and breast black, sometimes suffused with bright chestnut; cheeks and sides of the neck white; belly dull white; bill bluish-black; legs pale brown. Length 6 in.; wing 3 in. In winter the colours are duller and the bill is yellowish-brown. In the female the upper parts are striated with dusky-brown; there is no black on the throat or grey on the crown, and the under parts are brownish-white. The young bird is deeper brown both above and below; the middle wing-coverts are tipped with buff; the bill is dull yellow.

THE TREE-SPARROW.

PASSER MONTÁNUS (Linnæus).

The Tree-Sparrow is rarer and more local than the preceding species, but it is undoubtedly extending its range, having recently been found in the Outer Hebrides, including St. Kilda, and in North Ronay, as well as in many other places where it was unknown in former times. In the south-west of England it is as yet uncommon, and it is not abundant in Wales, although it breeds in Brecon; while it is very local in Lancashire and Cumberland. It is probably more abundant in Cambridgeshire and some of the eastern and midland counties than elsewhere; but it is difficult to sketch its distribution with accuracy, owing to the strong probability that, from its resemblance to the House-Sparrow, it has often been overlooked. Large numbers arrive from the Continent upon our north-east coast in autumn. On the mainland of Scotland its settlements are mostly along the eastern side, from the Border to Sutherland. Unknown in Ireland until 1852, it is now a resident and increasing species near Dublin; Mr. H. M. Wallis has stated that he saw a pair in May 1886 on Aranmore Island, off Donegal; and a bird has been taken at the Tuskar lighthouse.

About 1869 the Tree-Sparrow reached the Færoes, where it has multiplied exceedingly; and in Norway, although still local, it has now spread beyond the Arctic circle. Throughout the rest of northern and temperate Europe it is generally distributed; in Hungary and Slavonia it is more abundant than the House-Sparrow; and, although local, it may be said to be common in most parts of

the south, except in the islands of the Mediterranean. I have specimens from Valencia and Málaga in Spain, but the bird has not yet been obtained in Portugal. It is rather common in some parts of the south of France, and breeds in many towns, but is very local in the Pyrenees. In Algeria and Tunisia it is rare, but it is said to visit Egypt and Arabia; it is found throughout the greater part of Asia south of about 58° N. lat., down to the Philippines and the Malay Peninsula; and in Java, where it was introduced less than a century ago, it has already varied so much from the type as to be named var. *malaccensis* by M. Dubois. Imported specimens, or their descendants, have been obtained in North America.

The nest is often placed at some distance from habitations, in the rotten wood of pollard-willows and other trees; but in many districts it is built in the outer side of the thatch of barns and outhouses, and beneath the tiles of roofs, as well as under the coping of old walls and in sea-cliffs; in fact almost any hole will serve. The materials employed are mostly dry grass and feathers; the 4–6 eggs, smaller and more glossy than those of the House-Sparrow, are greyish-white, generally freckled all over with rich hair-brown: measurements ·75 by ·54 in. Two, and even three broods are reared in the season; the first being hatched about the middle of April. The young are fed on caterpillars and other insects, soft vegetables &c., but later, both they and their parents live principally upon small seeds; while in winter both young and old frequent rick-yards, highroads and even streets of towns, for the horse-droppings. The male has a slight, though somewhat pleasant song, but the ordinary call-note is a shrill chirp. In captivity—and exceptionally in the wild state—this species has bred with the House-Sparrow.

Unlike the preceding species, the sexes are alike in plumage. The adult has the lores and a streak under each eye black, crown and nape warm reddish-brown; cheeks and ear-coverts white, with a triangular black patch; mantle, wings and tail much as in the male House-Sparrow, but both upper and lower wing-coverts tipped with white, forming two distinct bands; chin and throat to upper breast black; under parts greyish-white, brownish on the flanks; bill black; legs and feet pale brown. Length 5·6 in.; wing 2·75 in. In the young bird the plumage is duller, and the bands on the wings are tinged with buff. As shown by the above measurements it is a decidedly smaller species than the House-Sparrow.

THE CHAFFINCH.

FRINGÍLLA CŒLEBS, Linnæus.

The Chaffinch is a common and generally distributed species throughout the cultivated or wooded portions of the British Islands, especially in the north of England; it may even be found nesting in low bushes in some of the treeless Outer Hebrides, as well as the Orkneys, and also at a considerable elevation on the mountains of Scotland, where it is undoubtedly increasing. As yet it has not been recorded as breeding in the Shetlands, although it visits them, especially in October, and some birds remain for the winter. At that season large flocks arrive from the Continent on our east coast, while other bands, from the north of our island, spread themselves over the inland provinces. Owing to a partial and temporary separation of the sexes at this time, the name *cœlebs*, or bachelor, was used by Linnæus in reference to the deserted males. Mr. Barrington considers it the commonest passerine bird in Ireland.

As a wanderer the Chaffinch has been obtained in the Færoes, and in summer it occurs, in comparatively small numbers, nearly up to the North Cape; while south of the Arctic circle it is generally

distributed during the breeding-season throughout the temperate regions of Europe down to the Mediterranean. Colonel Irby found it breeding near Gibraltar, but in the south of Spain it must be very local in summer, though common in winter. At that season it visits Egypt as well as the coast of Morocco, Algeria and Tunisia, but inland, the representative species is *F. spodiogenys*, the male of which has a bluish-grey head and nape, greenish back, and under parts of a vinaceous white, while the female is much greyer than our bird. Dr. Sharpe distinguishes the Madeiran Chaffinch as *F. maderensis*, and considers *F. moreleti* of the Azores and *F. tintillon* of the Canaries as subspecies ; the dark grey *F. teydea*, found on the Peak of Teneriffe, being distinct. Our Chaffinch breeds on Hermon, Lebanon, and in the forest region of Persia ; and has been found as far east as Omsk in Siberia.

About the middle of April, the nest, almost too well known to need description, may be found at a moderate height from the ground, in a fork of the lower branches of a tree or in a bush, and is artfully composed of wool, green moss, lichens and other substances felted together, with a lining of hair and feathers. The eggs, 4–6 in number, are usually of a pale greenish-blue, clouded with reddish- and spotted with purplish-brown, but occasionally they are unspotted blue : measurements ·8 by ·57 in. Two broods are generally reared in the season. The call-note is *chissick*. The alarm-note or challenge is the familiar *spink*, *spink*, *spink*, to which the bird owes one of its many local names ; the song varies much in different localities, one of the commonest renderings being *toll-toll*, *pretty-little dé-ár*. Both young and old feed largely on insects and the seeds of weeds, so that in spite of pilfering of fruit, vegetables and newly-sown seeds, the Chaffinch may be considered as one of the gardener's best friends.

Adult male in spring : forehead black ; crown and nape bluish-grey ; back reddish-brown ; rump yellowish-green ; upper wing-coverts white, greater coverts black, tipped with yellowish-white, forming two conspicuous bars ; quills dull brown, slightly fringed with greenish-white ; central tail-feathers dark grey, the rest black, with broad white patches on the two exterior pairs ; cheeks, throat and under parts rich reddish-brown, paler on the belly ; bill bluish-lead ; legs dull brown. Length 6 in. ; wing 3·4 in. In autumn the bill is brownish, and the head is tinged with rufous. Female : head and back light yellowish-brown ; breast pale yellowish-grey. Young : similar to the female, but with paler tints at first ; the males, however, begin to show brighter colours within a fortnight.

THE BRAMBLING.

FRINGÍLLA MONTIFRINGÍLLA, Linnæus.

This species is said to pass through the Shetlands on both migrations, but its appearance is decidedly irregular in the Orkneys, as well as in the west of Scotland generally; while even on the east side it is seldom abundant to the north of the Firth of Forth, though immense flocks are sometimes observed in the Lothians. Throughout October many arrive annually on the north-east coast of England, especially the Humber district, but further south the relative abundance of the Brambling—or Mountain-Finch as it is sometimes called—depends upon the severity of the weather on the Continent. In hard winters the species may be very numerous, especially in the vicinity of beech-woods, but in other years it is not noticed; while in Cornwall and Wales its appearance is very uncertain. By the middle of March almost all have returned to their northern breeding-grounds, but exceptionally a few birds have been known to remain behind. To Ireland this bird's visits are very irregular, and it is little known there, but at long intervals large

flocks have been observed in the beech-woods of Armagh and the north-eastern districts, and also in co. Cork.

To the Færoes the Brambling is only an exceptional visitor. On the mainland it breeds throughout the sub-Arctic pine and birch forests, from Norway to Kamchatka; while on migration it occurs in Japan, China, Northern India, Asia Minor and the whole of Europe; but it is only in very severe winters that it pushes its wanderings to the African side of the Mediterranean. Immense flocks sometimes visit Belgium, Holland, Germany and Heligoland; but statements that this species has nested in the Pyrenees, the Alps, or the Ardennes, are as yet unconfirmed.

As a rule, the Brambling breeds at higher altitudes than those frequented by the Chaffinch; and its nest, usually placed where a branch meets the stem of a birch- or fir-tree, but sometimes in small juniper bushes, is bulkier, less compact, and largely composed of birch-bark. Several pairs generally breed in company. The eggs, 6–7 in number, laid late in May or early in June, are, as a rule, rather greener than those of the Chaffinch and have more defined markings, but many of each species are quite indistinguishable: measurements ·8 by ·6 in. The Brambling has bred several times in captivity. Its food consists of insects, small seeds—especially those of the knot-grass, beechmast, and the kernels of nuts. The call-note is a harsh *chib*; the male during the breeding-season utters a long, wearisome and oft-repeated *cree*, much louder than that of the Greenfinch.

The adult male in breeding-plumage has the head, cheeks, nape and back glossy blue-black with white bases to the feathers, which sometimes show in the form of an irregular collar; upper wing-coverts orange-buff, tipped with white; greater coverts black, margined with white, which forms a conspicuous bar; quills mostly brownish-black, with whitish exterior margins; rump white, mottled with black; tail-feathers black, with a little white at the base of the outer pair; throat and breast reddish-fawn-colour; belly dull white; flanks spotted with black; under wing-coverts bright yellow; bill bluish-black; legs brown. Length 6·1 in.; wing 3·6 in. In autumn and winter the black feathers of the head and back have ample margins of reddish-brown (as represented in the woodcut), which are shed in spring; a warm orange-brown pervades the wing- and tail-coverts, breast and flanks; and the bill is yellow, with a black tip. The female is dull brown on the upper parts and has none of the rich black and chestnut markings of the male. Young birds at first resemble the female, but the males soon show signs of black on the head and back, and the under parts are brighter fawn-colour.

THE LINNET.

LINÓTA CANNÁBINA (Linnæus).

Owing to its seasonal changes of plumage this species is often known as the Grey Linnet; also as the Red or Brown Linnet, to distinguish it from the Greenfinch, which is frequently styled the Green Linnet. It is widely distributed throughout the greater part of the British Islands, especially on uncultivated lands and furze-covered tracts; but in the mountain-regions of Scotland it is represented by the Twite. Near Gairloch in Ross-shire it is almost unknown, and it appears to be local in the Hebrides, though common enough in the Orkneys; while in Shetland it was identified by Mr. Harvie-Brown in October 1892. In autumn large flocks from the Continent arrive on our east coasts, and a general movement southward occurs among our home-bred birds.

The Linnet does not breed north of lat. 64° in Scandinavia, nor beyond 60° in East Russia; but southward, it is found as a resident all over Europe, as well as in North-western Africa, the Canaries and Madeira. Eastward, it appears to range as far as the Altai Mountains; but the representative which breeds in Asia Minor, Hermon and Lebanon nearly up to the snow-line, as well as in Persia and Northern India, is more ash-coloured, with bright scarlet on the breast and more defined coloration, and is known as

L. fringillirostris or *L. bella*. In winter one or both visit Egypt and Abyssinia.

Breeding begins about the middle of April; the nest being made of fine twigs, moss and grass-stalks, and lined with wool, hair, vegetable-down and sometimes a few feathers. It is generally placed in gorse or juniper bushes, though often in hedges, and sometimes in low trees. The eggs, 4–6 in number, are bluish-white, blotched, speckled and streaked with reddish-brown and purplish-red: measurements ·7 by ·53 in. Two broods are often reared in the season. The food consists of soft seeds, especially those of an oily nature, as in the case of the various species of flax and hemp; grains of charlock, knot-grass, and other weeds are also largely consumed; while in winter various kinds of berries and even oats are devoured. In autumn the different families unite in large flocks, which may be seen crossing the stubbles with swift dipping flight, uttering their musical and rapidly-repeated *twit, twit*. At this season large numbers are taken by bird-catchers, as the prisoners then adapt themselves more easily to captivity than if captured in the spring. The natural song is sweet, although somewhat irregular, but it is the capacity for learning the notes of other species which makes the Linnet so great a favourite for the cage. In our cold, dull climate, captive males seldom acquire in spring the fine crimson tints on the head and breast; but abroad, under the influence of warmth, bright sunshine and good food, Mr. J. Young has known them do so, while in Madeira the wild males appear to undergo hardly any eclipse.

The adult male in breeding-plumage has the forehead and centre of the crown crimson; rest of the head, nape and sides of the neck mottled brownish-grey; mantle chestnut brown; wing-feathers dull black, with white outer edges which form a conspicuous elongated bar; upper tail-coverts dark brown, with broad whitish margins; tail-feathers black, narrowly edged with white on the outer and broadly on the inner web; chin and throat dull white, striped with greyish-brown; breast crimson, occasionally with a decided yellow tinge; belly dull white; flanks fawn-brown; bill horn-colour, legs brown. Length 5·5; wing 3·15 in. In autumn the bill is brownish, the crimson feathers are concealed by wide grey margins, and the under parts are more striated. The female is rather smaller and duller in colour, with no crimson on the head and breast, and little white on the wings, while both upper and under parts are much streaked with dark brown. The young at first resemble the female.

THE MEALY REDPOLL.

LINOTA LINÁRIA (Linnæus).

The logical separation of the various species or races of Redpolls is one which presents unusual difficulties. Dr. R. B. Sharpe considers (Cat. Birds Brit. Mus. xii. pp. 245–257) the typical Mealy Redpoll, *Linota linaria*, as a main stem, if I may use the term, with three subspecies, viz.: *L. holboelli*, rather larger and with a very much longer bill, found "in Northern Europe from Scandinavia to Eastern Siberia," and, as a wanderer, twice in Norfolk; *L. rostrata*, "only distinguishable by the coarser striping of the under parts and by the stouter and more obtuse bill," inhabiting Greenland and North-eastern America; and our smaller and ruddier Lesser Redpoll, *L. rufescens*, of which more hereafter. *L. exilipes*, with greyer rump, Dr. Sharpe considers to be a good species, with a range extending from Northern Scandinavia across Siberia and throughout Northern America; while he puts down as a subspecies of *L. exilipes* the rather larger *L. hornemanni*, of Eastern North America, Greenland, Iceland, Jan Mayen and Spitsbergen, one example of which was recorded by Hancock, under the name of *L. canescens*, as having been obtained near Whitburn, Durham, on April 24th 1855, and another by Mr. Cordeaux from the Humber district (Zool. 1895, p. 58). The whole question is incrusted by a voluminous literature, in which hardly two authors agree as regards specific value; but,

for the sake of convenience, I treat the Mealy Redpolls under one heading, and take our small, dark, Lesser Redpoll separately.

The typical Mealy Redpoll is a common visitor to Shetland from September onwards, while the line of its migration appears to be principally along the east coast in Scotland and the north of England, for the bird is rarer and of more uncertain occurrence on the west side. South of Durham its visits become irregular; in the Eastern Counties it has occasionally been obtained in spring, and exceptionally in summer; and in some years large flocks have been noticed down to the Channel, though in Devon and Cornwall it is almost unknown. In Ireland it has been taken in Kildare and Mayo; while the Tearaght light has furnished several examples of the subspecies *L. rostrata* in various autumns, from 1889 to 1893.

In Europe and Asia the Mealy Redpoll nests rather farther north than the limits of birch-growth, but southward, it may be doubted if it reaches below 58° N. lat.; for the bird found breeding in the mountain-regions of Central Europe is, probably, our Lesser Redpoll. The Mealy Redpoll has been obtained on Kolguev Island (Pearson), and on migration it is irregularly abundant down to the Alps, but rare in the south of France, Italy, Greece and Southern Russia. As already stated, one or two races breed in Arctic America, and a large form in Greenland, Iceland and Spitsbergen.

The nest, neatly built of bents, lichens and shreds of bark, with a lining of catkins, hair and feathers, is usually placed in the low fork of a tree or a bush, and sometimes in a tuft of grass. The 5–6 eggs are greenish-blue, spotted with reddish-brown: measurements ·7 by ·5 in. The young feed on insects and their larvæ; afterwards on seeds, like the parents.

The adult male in spring has the lores black; forehead and part of the crown blood-red; upper parts dark brown, mottled and streaked with greyish-white, especially on the rump, which is tinged with pink; tail-feathers dark brown, with pale edges; chin black; sides of neck and breast carmine; lower parts dull white, streaked with dark brown on the flanks; bill horn-colour, yellowish at the base; legs dark brown. Length 5·1 in.; wing 2·9 in. The female is smaller, darker on the upper parts, and more streaked on the lower; with less red on the head and none on the breast. The young have the upper feathers margined with buff and have no red on the forehead, but are otherwise like the female. After the autumn moult the new feathers have broad yellowish-grey margins, which, in the male, conceal the carmine, and the general appearance is very pale; whence the name of 'Mealy,' and, perhaps, of 'Stone-Redpoll.'

THE LESSER REDPOLL.

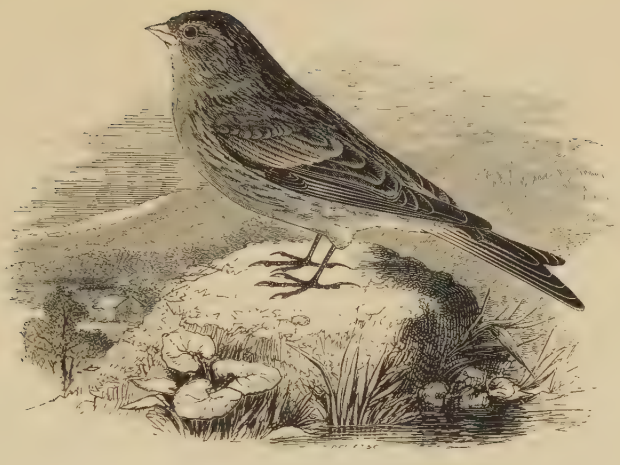
LINOTA RUFÉSCENS (Vieillot).

The Lesser Redpoll, the smallest of our British Finches, may be distinguished from the preceding by its size, and by its darker and more rufous colouring. Throughout the greater portion of the year it is generally distributed over the British Islands, and large numbers are taken by bird-catchers from autumn to spring; but in the breeding-season it is rather local. Its distribution at that time in Scotland appears to be somewhat dependent upon woods and plantations, and is consequently irregular, extending to the Orkneys and to the Inner Hebrides, but not to the Outer group; though in winter the bird is generally dispersed and partially migratory. In Wales and England it nests, more or less commonly, in and north of Brecon, Worcestershire, Shropshire, Leicestershire and Norfolk; locally in Suffolk, Northamptonshire and Cambridgeshire; sparingly in Gloucestershire and along the upper parts of the Thames valley; and more frequently than is generally supposed in the counties of Middlesex, Surrey and Kent, even in the vicinity of London. In Hants, Wilts, Dorset and Devon, it is a very local breeder, and in the extreme south-west it is rare at any time; while it has never been obtained on migration from any of the light-ships on the east coast of England. It nests commonly in many parts of Ireland, and large flocks are sometimes seen in winter.

On the Continent the Lesser Redpoll is unknown to the north of the Baltic, but it visits Heligoland (where a pair nested in 1872), Western Germany, Holland, Belgium, and France down to the Pyrenees. Bailly stated long ago that it bred in Savoy; Mr. S. B. Wilson says that he found it nesting on the Engstlen Alp (6,100 feet) as well as in other parts of Switzerland; and Professor Giglioli maintains that it breeds on the Italian side; while even Dr. Stejneger admits ('Auk' 1887, p. 144) that examples from the Austrian Alps are practically identical with British specimens. There are, however, some ornithologists who question the identification. In severe winters our bird extends its migrations to the south of Spain.

In the southern half of England the nest is often built in April, but nearly a month later in the north. The situation selected varies a good deal; in Norfolk, for instance, a small fruit-tree is often chosen, while a good many pairs may be found breeding in low alders and willows, down in the marshes; again, small plantations of conifers, shrubberies, and hazel are much frequented. Fine twigs and grass stems, with a little moss and wool, are the materials employed for the exterior of the nest, the inside being beautifully lined with vegetable-down (principally from the catkins of the willow), hair and feathers. The 4–6 eggs are pale blue, spotted with reddish-brown: measurements ·63 by ·48 in. Two broods are usually produced in the season, and unfledged young have been found in the nest as late as September 14th. In autumn the various family parties unite to form large flocks, and rove about in search of food, which consists mainly of seeds. At all times of the year the Lesser Redpoll is a tame and confiding bird, allowing a near approach; and it is also sociable, being frequently found in the company of Siskins and other species. The usual note is a continuous twitter, but the love-song of the male is rather loud and clear.

The adult male in spring has the lores and throat black, forehead and crown blood-red; upper parts of a darker and warmer colour than in the Mealy Redpoll—especially the pink-tinted rump, while the bands on the wings are rufous-buff, not white; breast carmine-red; plumage otherwise as in the Mealy Redpoll, and colour of soft parts the same; but the dimensions less, our bird measuring only 4·75 in., and wing 2·75 in. After the autumn moult the red tints are generally less brilliant, owing to the pale edges of the new feathers; but I have seen old males with plenty of crimson in October. The female is smaller than the male, and has no red on the rump or breast, but only on the forehead; while the young bird is even duller in colour, inasmuch as it has no red on the head.



THE TWITE.

LINOTA FLAVIRÓSTRIS (Linnæus).

The Twite, or Mountain-Linnet as it is often called, may be distinguished from the Redpolls by its longer tail, more slender appearance, and the absence of any crimson tint on the head or breast. During the breeding-season it is an inhabitant of most of our moorlands from the Midlands northward, and, although more frequent in the hilly districts, it nests at the lower level of the mosses in Lancashire and elsewhere; it is, however, rather local, and only a few pairs seem to breed in the Lake district. In Cumberland it has, for some unaccountable reason, decreased during the last thirty years. On the mainland of Scotland the "Hill-Lintie" or "Yellow-neb Lintie," as it is called, becomes more abundant, especially where there is a sufficiency of long rank heather; while in the neighbourhood of the shore, on the long arms of the sea so numerous on the west coast, as well as in the Hebrides, Orkneys and Shetlands it is resident and numerous. In Ireland it breeds commonly on the mountains, and especially on the elevated coast, from Waterford in the south to Donegal in the north. On the approach of cold weather the higher districts are abandoned, and flocks, which gradually increase, descend to the sea-shore and spread themselves over the country, large numbers occurring on the Lincolnshire coast in the first half of October; but in the south and east of England their appearance is somewhat irregular, while in Cornwall the species is, like the Lesser Redpoll,

extremely rare, and it seems to be unknown in Pembrokeshire as well as Merionethshire, in Wales.

On the Continent the Twite is found in summer among the islands and along the coast of Norway up to about 70° N. lat., but in Sweden it is scarce even in the sub-alpine districts, and it is somewhat doubtful if it nests in Northern Russia. On migration it visits Denmark and Northern Germany (sometimes passing in large numbers over Heligoland), Holland, Belgium and France; but it seldom goes far south, and its occurrences in Spain, Italy and Southern Russia, have been few and far between. In the east, however, from the Caucasus and Asia Minor to Tibet, it is represented by *L. brevirostris*, which is little more than a paler form.

The nest is often placed in heather, or in low fruit and other bushes; sometimes in ivy, or among the grass growing on rocks by the sea-shore, or again, beneath a strip of turf which has been nearly reversed in ploughing or in road-making; while on Rathlin Island I found one on the ledge of a cliff, 800 feet high, when seeking eggs of the Manx Shearwater. Fine roots for the outside, with an ample lining of wool, a little hair and a few feathers, are the materials employed; the eggs, usually 3–4, but sometimes 6 in number, being pale greenish-blue, blotched with reddish-brown, and rather more inclined to streakiness than those of the Linnet: measurements ·7 by ·5 in. Nidification commences about the middle of May, and two broods are sometimes produced in the season. The food consists largely of the seeds of charlock and other weeds, but in the Shetlands the bird is said to be somewhat destructive to the newly-springing turnips and cabbages. Its call-note is indicated by its monosyllabic name. The Twite is usually more shy than the Lesser Redpoll.

The adult male in spring has the lores, cheeks and throat reddish-buff; crown, nape and mantle hair-brown with paler edgings; wings dark brown, with whitish margins—very noticeable in flight—to the greater coverts, inner primaries and some of the secondaries; rump rose-red; tail-feathers brown, with whitish inner edges to the three outer pairs; breast and flanks buffish-white streaked with hair-brown; belly dull white; bill pale yellow; legs dark brown. Length 5 in.; wing 3 in. In winter the general appearance is greyer, and the bill is less yellow. The female has no carmine on the rump; the bar on the wing-coverts is buff; and the bill is dusky-brown at the tip. The young are somewhat duller in colour.

THE BULLFINCH.

PÝRRHULA EUROPÆA, Vieillot.

During the greater portion of the year the Bullfinch is a frequenter of wooded districts, in which, unless the white rump and —in the male—the bright colour of the breast should catch the eye, the bird may often escape notice, and thus be considered rarer than is really the case. In spring, however, it frequently attracts the attention of the gardener by its visits to his fruit-trees, and although the damage done to the young buds may sometimes be over-estimated, it cannot be denied that there is apparent ground for complaint. Throughout suitable localities in England and Wales the Bullfinch is generally distributed, especially on dry, sandy soils ; and, although rather more local in Scotland, it has of late years spread to some of the Hebrides—especially to the south-eastern part of Skye, but to the Orkneys and Shetlands it is a rare visitor. In Ireland it is common, except in treeless districts, and in the south is increasing.

In Northern and Eastern Europe and in Siberia, migrating southward in winter, is found a large and brilliant race, which has been separated by Brehm as *P. major*, and this has been freely imported and has been taken in Yorkshire ; but our smaller bird inhabits

the countries south of the Baltic and west of Central Russia, as far as the northern portions of the Spanish Peninsula, while in Italy it reaches Naples and Sicily; wandering occasionally to several islands in the Mediterranean, and even to Algeria. In the mountainous portions of St. Michael's, one of the Azores, is found *P. murinus*, a large insular species, in which the sexes are nearly alike in plumage, both of them being of a dull grey without any white on the rump; a remarkable development, as no connecting link is known in the Canaries or in Madeira.

The unmistakable nest of the Bullfinch is a platform of fine twigs of the birch, beech, fir &c., surmounted by fine roots and a little hair woven into a shallow cup for the eggs. These, laid in the early part of May, are 4–5 in number, of a clear greenish-blue, speckled and streaked with purplish-grey and dark brownish-purple, especially at the larger end: measurements ·73 by ·55 in. A white-thorn hedge, or a fork near the extremity of a low branch in some leafy tree or evergreen (yew and box being favourites), are among the sites selected. The duties of incubation devolve upon the female. The young are fed partly on insects and their larvæ, and partly on seeds softened by the parent; but later in the year I have seen both old and young birds feeding upon the berries of the rowan-tree, dog-rose, hawthorn &c., while the seeds of such weeds as the dock, thistle, ragweed, groundsel, chickweed and plantain, are largely consumed. It is open to doubt whether the Bullfinch's destructiveness to buds in spring may not originate in a search for concealed insects, but in any case a charge of shot fired into the tender branches of a fruit-tree does far more damage than the depredations of the bird. The call-note is a soft *wheou*.

The adult male has the forehead, lores, throat, and head above the eyes, glossy blue-black; mantle smoke-grey; larger wing-coverts black, tipped with white, which forms a conspicuous bar; quills dark ash-colour, with narrow whitish edges to the emarginate portions of the 2nd, 3rd, 4th and 5th; secondaries glossy blue-black; rump pure white; tail glossy blue-black; cheeks and under parts bright brick-red; vent white; bill black; legs and feet dark brown. Length 6 in.; wing 3·25 in. The female is of a browner grey on the upper parts, and the under parts are vinous-brown. The young differ from the female in having no black on the head, and the bar on the wing is buffish-white. An entirely black nestling, found with three other young birds of the ordinary colour, attained after moulting the plumage of the female.

THE SCARLET GROSBEAK.

PYRRHULA ERYTHRÍNA (Pallas).

The Scarlet Grosbeak is an Eastern species which has noticeably extended its range in a westerly direction of late years, and on two occasions has been known to stray to England. The first instance on record was that of a female, captured on the downs near Brighton in September 1869, which subsequently lived until June 1876 in the aviary of Mr. T. J. Monk of Lewes, in whose collection it is now preserved. On October 5th 1870, another female, in the collection of the late Mr. F. Bond, was taken near Caen Wood, Hampstead. Other examples have probably occurred from time to time, and have been overlooked; for young birds or females of this species might easily be mistaken for Greenfinches.

As a straggler, the Scarlet Grosbeak has visited Finmark, South Sweden, Sylt, Schleswig, Heligoland, Holland, Belgium, France (especially Provence), the south of Spain (whence I possess a specimen, killed on November 15th 1874, and have seen another), Austria, Italy and Malta. In North eastern Germany it is not uncommon on migration, and on one occasion it has been known to nest in Silesia; but the western limits of its usual breeding-range appear to be Finland, the Baltic Provinces of Russia, East Prussia and Poland. Eastward, it nests throughout the marshy forests of

Northern Siberia to Kamchatka ; further south, in the elevated regions of the Caucasus, Asia Minor, Turkestan, the Himalayas, and Central Asia to Northern China. In winter it is very common throughout the greater portion of the Indian region. It is rather late in returning to its northern breeding-quarters in Europe, and near Warsaw it does not arrive until about the middle of May ; but in the drier climate of Siberia it is earlier. It leaves towards the end of August or early in September.

The nest, which is rather deep, and slenderly constructed of dry grass-stalks with a lining of horsehair, is placed in the fork of a small bush, generally in the neighbourhood of water. The eggs, usually 5 in number, are laid about the middle of June, and of a deeper greenish-blue than those of the Bullfinch, sparsely marked with reddish-brown and almost black spots : measurements ·75 by ·57 in. The food consists of seeds, grain and berries, and Col. E. A. Butler says that the bird is partial to the watery nectar in the flower of the Indian coral-tree, while Jerdon observed it eating bamboo-seeds ; the young are probably fed on insects. The song, generally uttered from the top of a bush or low tree, is a loud clear whistle, *tu-whit, tu-tu-i*, several times repeated in rapid succession, whence the Hindoo name 'Tuti.'

The adult male has the top of the head glossy carmine-red ; mantle warm brown with a reddish tinge ; quills and tail dark brown, with paler buffish margins ; rump and upper tail-coverts carmine-red ; chin and throat rich rose-red ; breast rose-pink, fading to brownish on the flanks ; bill yellowish-brown ; legs reddish-brown. Length 5·5 in. ; wing 3·25 in. The female has no red tints, the general colour of the upper parts being dull striated olive-brown, but the wing-coverts and inner secondaries are much more conspicuously edged with dirty white than in the male ; the lower parts are dull white with a buffish tinge on the throat and breast, and numerous hair-brown streaks from the latter to the flanks ; a brown stripe descends from either corner of the lower mandible. The young are at first rather greyer in tint than the female, but cock birds soon begin to show a distinctly yellowish tinge on the ear-coverts, rump, and the outer margins of the quills and tail-feathers. It seems probable that the rosy hue is not assumed until after the second moult.

This species has been separated by some modern authors from *Pyrrhula*, under the generic name *Carpodacus* of Kaup ; the distinctions consisting mainly in the shape of the bill and in the smaller amount of covering to the nostrils.

THE PINE-GROSBEAK.

PYRRHULA ENUCLEÁTOR (Linnæus).

The Pine Grosbeak is at the utmost a very rare visitor to the British Islands, and although about forty so-called 'occurrences' are on record, critical examination by Mr. J. H. Gurney (Zool. 1877, pp. 242–250 and 1890 pp. 125–129), and Professor Newton (4th Ed. Yarrell's B. B.), has disposed of many as unworthy of belief, although the identification of the specimens still existing is correct. Live birds have often been brought to England, and, according to Dr. A. G. Butler, few species are more likely to be turned out of aviaries, on account of their voracity and bad habits; while dead specimens have frequently been sent over frozen, a notable consignment being in March 1889. Where so much deception is known to have been practised, suspicion is inevitable, and may, perhaps, be carried too far. Mr. J. Whitaker has a male in rosy plumage shot on October 30th 1890, in Nottinghamshire (Zool. 1890, p. 464); while a female, recorded by Mr. J. H. Gurney (Zool. 1893, p. 150), was captured alive near Yarmouth on September 3rd 1892, moulted in October, and was alive up to January 24th 1893. In Heligoland an adult male was obtained on October 20th 1890.

To Denmark the Pine-Grosbeak is only a rare winter-visitor, and its occurrences, even in the suitable conifer woods of North-eastern Germany, Silesia, and Poland, are irregular. Accepting the records without criticism, the bird has strayed at long intervals to Holland, Belgium, France, Switzerland, and Southern Germany; while, probably following the line of the mountain pine-woods, a solitary example appears to have crossed the Alps to the Trentino in the winter of 1876. Its home is principally in the conifer region near the Arctic circle; but sometimes, as at Pulmak in Lapland, it extends to the birch woods as far as 70° N. lat.; while eastward, the bird is plentiful in Northern Russia, across Siberia to Kamchatka, and as far south as Lake Baikal; as a straggler it has also been obtained in the Kuril islands, to the north of Japan. In America it occurs throughout the Arctic and sub-Arctic forests, migrating southward in winter to California, Colorado and the northern portions of the Eastern States.

For the first knowledge of the nesting and eggs of the Pine-Grosbeak, we are indebted—as in many other cases—to the researches of the late John Wolley, who discovered the breeding-haunts of this bird in Lapland. The nest, similar to that of the Bullfinch, consists externally of interlaced birch-twigs, with a lining of fine stiff grass, and is usually placed on the horizontal branches of a fir or a birch-tree, near the bole. The 4 eggs are deep greenish-blue, spotted with brownish-purple: measurements 1 in. by ·72 in. The food consists partly of insects, but mainly of buds, birch-catkins, seeds and various berries. The song has been described as loud and flute-like; the flight is undulating.

The adult male has the feathers of the head, back and rump suffused with rich rose-red, upon a ground-colour of slate-grey; wings ash-brown, with broad pinkish-white tips to both sets of wing-coverts, and white margins to the secondaries; tail dusky-brown; under parts rose-red, turning to grey on the flanks and vent; bill dark brown, paler at the base of the lower mandible; legs blackish-brown. Length 8·25 in.; wing 4·25 in. In the female the rose tint is replaced by a more or less golden-yellow, except on the back, which is slate-grey. The young have a greyish-green tinge. The late Mr. A. C. Chapman found a pair of birds breeding in this greyish-green plumage, the male having rather more of the yellow colour than the female; another nest belonged to a couple of greyish-green birds; while at a third nest a male in full rosy plumage was paired with an ash-grey female.

Many authors have accepted the genus *Pinicola* of Vieillot for this species.

THE CROSSBILL.

Lóxia curviróstra, Linnæus.

In England the Crossbill is generally noticed from autumn to spring, in family parties which sometimes unite to form flocks; but numerous instances are known in which this essentially nomadic species has bred among conifers, even in the southern and eastern counties, although such situations as its habits require are less frequent there than in the north. From the Lake district upward it nests in many localities, chiefly in the old pine-forests of Scotland; but it seldom strays to the Outer Hebrides, and is an uncertain visitor to the Orkneys, though of regular occurrence in the Shetlands. In Ireland it has been found breeding in many counties, owing to the increase of fir plantations of late years. Throughout the British Islands it occurs irregularly on migration, from July onward.

The Crossbill nests throughout the pine-forests of Europe, from Lapland to Spain, the Balearic Islands, and Greece, as well as in the mountains of Africa (the southern residents having noticeably weaker bills than northern examples); and it also frequents the conifer growths of Siberia as far as Kamchatka, wintering in North China. The pine-woods of Scandinavia and Northern Russia are simultaneously inhabited by a large stout-billed race, formerly distinguished as the Parrot-Crossbill, *Loxia pityopsittacus*, but now esteemed by modern authorities as merely one of several forms which Dr. Sharpe (Cat. Birds Brit. Mus. xii. p. 439) "does not consider to be worthy of even subspecific rank." This extreme phase merely differs from the type in its tendency to larger size, and in the fact that its food consists largely of the seeds of the Scotch fir, whereas the smaller and commoner form also feeds on the spruce, larch, stone-pine &c. The large-billed birds are occasionally obtained in our islands and in Central Europe, though they do not migrate far south. Forms slightly smaller than the ordinary Crossbill are found in the Himalayas and Tibet, Japan, and in North America, but the highlands of Mexico produce a rather larger race.

The nest, frequently built in February or March, is generally placed on the horizontal branch of a fir, often close to the stem, and is formed of twigs, surmounted by a cup-shaped structure of dry grass, moss, wool and lichen, with a lining of similar but softer materials. The eggs, usually 4, and rarely 5 in number, are greyish-white, sparsely spotted with several shades of reddish-brown, like those of the Greenfinch, but larger: measurements ·9 by ·66 in.; those of the Parrot-Crossbill hardly exceeding these dimensions. In summer both young and old birds eat caterpillars and the larvæ of insects, but later their food is obtained from larch and fir cones, while rowan and other berries, apple-pips and buds are also consumed. The note is a *gip*, *gip*, *gip*, *chi*, *chi*.

The adult male has most of the upper and under parts dull crimson, which is brightest on the rump (younger birds are orange-yellow); wings brown, with a pale bar along the edges of the coverts; tail brown; bill, legs and feet dark brown. Average length 6·5 in.; wing 3·8 in. In the female the red is represented by greenish-orange, and her plumage is more striated, especially before maturity. The young bird is greenish-grey, with a little yellow on the rump, and also on the gorget in the cock; under parts much striated; in the nestling stage the general colour is ash-brown, and at three weeks old the bill is still straight, the lower mandible shutting within the upper.

THE TWO-BARRED CROSSBILL.

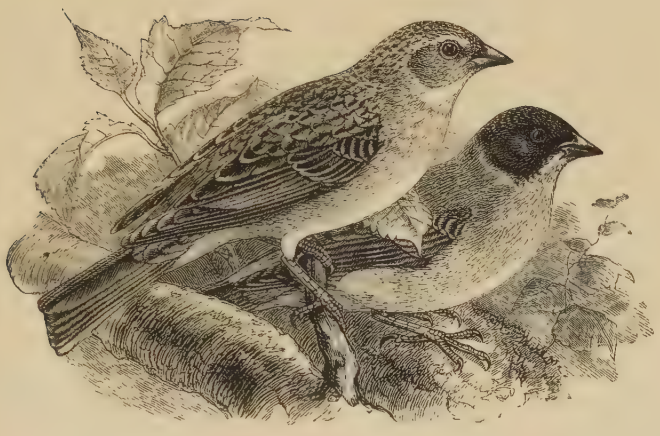
LOXIA BIFASCIÁTA (C. L. Brehm).

This species—sometimes called the European White-winged Crossbill, to distinguish it from the American form—inhabits the coniferous forests of Northern Russia and Siberia as far as Kamchatka and the Pacific; wandering in autumn and winter to South Sweden, Denmark, Heligoland, North Germany, Holland, Belgium, the north of France, Switzerland, North Italy, Austria and Poland. In our islands the first recorded specimen was obtained near Belfast, Ireland, on May 11th 1802, and in July or August 1868, a second was obtained in co. Dublin. A few years prior to 1843 one was killed in Cornwall; between November 1st 1845 and March 25th 1846 eleven were shot in the neighbourhood of Brampton in Cumberland; in May 1846 two or three were killed from a flock near Bury St. Edmund's, Suffolk; and about the same time the late H. Doubleday shot a bird at Epping. Others seem to have been observed from time to time in various parts of the United Kingdom, and in the autumn of 1889 another invasion took place, many birds being observed from Yorkshire to Surrey. On June 18th 1894 an adult male was shot at North Ronaldshay, Orkneys, while in February 1895 there were occurrences in Somerset and in co. Fermanagh.

The forests of America, from Alaska to Labrador, are inhabited by a bird known as the White-winged Crossbill, *Loxia leucoptera*, which Dr. Sharpe considers to be only entitled to subspecific distinction; and after examining many specimens, including those in the British Museum, I agree with him that the only difference of any moment between the European and American forms consists in the darker scapulars of the latter; to which I may add that the red in the male has a pinker tint, and the bill in both sexes is weaker. A hen, ascribed to the American form, in the Strickland Collection at Cambridge, was killed near Worcester in 1838; a red male was picked up dead at Exmouth on September 17th 1845; and a female, which lived in the late Mr. Stevenson's aviary at Norwich till December 1874, was stated by the dealer of whom it was purchased by Mr. J. H. Gurney to have been captured—it was not said where—on the rigging of the vessel "Beecher Stowe," which arrived at Great Yarmouth in October 1870. Even from Greenland only five occurrences are on record during nearly sixty years, and none from Iceland or the Færoes. As it is notorious that American White-winged Crossbills, captured at sea comparatively near their own coast, have been brought to the British Islands and have then escaped or been liberated, I do not consider that a claim has been made out to a place in the British list.

A nest of the Two-barred Crossbill sent to Mr. Dresser, with the parent birds, from the Archangel district, is described as rather smaller and slighter than that of the Common Crossbill, while the eggs are somewhat darker in colour and less in size. In food and habits this bird resembles its congener, but its song being of a superior quality, it is a greater favourite as a cage-bird.

Adult male: head, neck, mantle and rump carmine-red, slightly mottled with black; wings black, with white tips to the inner secondaries, and broad pinkish-white edges to the greater and median wing-coverts; tail-feathers brownish-black, narrowly edged with reddish-white; under parts carmine-red, which fades into white on the belly; bill horn-colour, lighter on the lower mandible; legs dull brown. Length 6·25 in.; wing 3·7 in. In less mature birds the pink tinge on the wing-bands is wanting, and the flanks are striated. Female: upper parts greenish-grey, with a yellow tint, and dusky-brown streaks; rump pale yellow; under parts greyish-yellow, paler on the throat and abdomen, and streaked with dusky-brown. Young bird in August: much striated on a greyish ground, with hardly any tinge of yellow; white upper wing-bar very narrow; quills and tail-feathers distinctly margined with greenish-white.



BLACK-HEADED BUNTING.

EMBERÍZA MELANOCÉPHALA, Scopoli.

The Black-headed Bunting—not to be confounded with our common Reed-Bunting, which is sometimes called by this name—is an inhabitant of the south-eastern portions of Europe; but from time to time it wanders westward, and, owing to the increased attention now paid to ornithology, its presence has been detected on four occasions in Great Britain. The first example, an adult female, identified by the late Mr. Gould and now in the collection of Mr. T. J. Monk of Lewes, was shot near Brighton while following a flock of Yellow Buntings, about November 3rd 1868. The Rev. J. R. Ashworth has recorded (Zool. 1886, p. 73) the acquisition of an identified specimen in June or July 1884, stated to have been shot in Nottinghamshire. A third example, said by the dealer from whom it was purchased to have been captured alive near Dunfermline about November 5th 1886, was recognized by the Rev. H. A. Macpherson at the Bird Show of February 15th 1887, held at the Crystal Palace (Zool. 1887, p. 193), where I saw it again in 1888, when in nearly adult male plumage. Mr. W. R. Butterfield has recorded (Zool. 1897, p. 273) the occurrence of an adult female, picked up near Bexhill, Sussex, on November 3rd 1894. The fact that the females and young are dull-coloured birds, and therefore not likely to be imported, favours the assumption that these histories are substantially correct.

On Heligoland the Black-headed Bunting has occurred about

Nubia, Arabia Petræa, Bushire and Sind. In forest and mountain regions it is practically unknown.

The Corn-Bunting is a late breeder, and in this country it is usually futile to search for its eggs before the latter part of May. The nest may often be found in rough herbage, or at the foot of a low shrub, but is generally placed well towards the middle of a field of clover, grass, or peas, or under a clod among young corn ; while some umbelliferous plant, sufficiently strong to afford a perch for the bird, will probably be at no great distance from it. Straw, a little moss, roots and dry grass, with hair for a lining, are the materials employed to form the somewhat loose structure ; the eggs, 4–5 in number, are of a dull purplish-white, or sometimes ochreous, blotched and streaked with dark purple-brown : measurements ·98 in. by ·7 in. The hen sits closely, whilst the male utters his harsh and monotonous *tic-tic-teese* on a perch, which varies in elevation from the top of some tall tree or a hedgerow to a clod in the fallows. The flight is heavy and laboured, the legs of the bird hanging down at first, as if broken. The young are fed on insects ; the adults have been seen to eat cockchafers, and they undoubtedly devour numbers of small beetles ; but in autumn and winter grain is largely consumed, and the birds become so fat that, in the south of Europe, they are much in request for the table. Many are taken in nets, together with Larks, owing to their habit of roosting on the ground, and Booth says that near Shoreham numbers resort in the evening to the beds of marine weeds which grow on the mud-flats above high-water mark.

The adult male has the lores, and a line above and behind the eye buffish-white ; ear-patches, head, neck, mantle and upper tail-coverts pale hair-brown, streaked with darker brown down the middle of each feather ; wing-coverts dark brown with buff margins ; quills dusky-brown ; tail-feathers rather lighter brown with pale edges ; throat buffish-white, with brown spots at the side which form a streak ; remaining under parts buffish-white, freely spotted on the breast and streaked on the flanks with brown ; bill yellowish-brown, with a dark stripe along the ridge of the upper mandible ; legs pale flesh-colour. Length 7 in. ; wing 3·6 in. The sexes are alike in plumage. The young bird is darker, with broad fulvous margins to the wing-coverts and secondaries, and the under parts are tinged with buff. Some Continental specimens—especially those from the east—are very pale in colour. Albinistic varieties are not uncommon.

THE YELLOW BUNTING.

EMBERIZA CITRINÉLLA, Linnæus.

The Yellow Bunting is familiarly known as the Yellow Hammer; the latter portion of the name having, no doubt, a common origin with 'Ammer,' the modern German word for a Bunting; but our form of spelling has now been in print for upwards of two centuries, and few, even among purists, will risk the imputation of a solecism by omitting the aspirate. The species is for the most part common and resident throughout the British Islands; it even nests in the Outer Hebrides and the Orkneys, but as yet is not known to do so in the Shetlands, although a winter-visitor to that group. As regards Ireland Mr. Barrington remarks that, considering its abundance, the birds which strike against the lighthouses are comparatively few in number.

In Norway the Yellow Bunting is found breeding up to about 70° N. lat., but eastward, its northern summer range gradually declines to 64° on the Ob, in Siberia, and even less in the valley of the Yenesei, where the bird is not known eastward of Krasnoiarsk; while to the south-westward, it occurs in Turkestan, Persia and Asia Minor. In temperate Europe this species is generally distributed, and, except in the northern districts, is resident; but its breeding-range does not appear to extend southward of the Pyrenees and the Cantabrian Mountains, nor the northern portions of Italy; while, even in winter, the bird is almost unknown in the islands of the Mediterranean, Southern Italy, and the south-west of Spain,

though said to occur in the Canaries. In Palestine, according to Canon Tristram, its place is taken by a very distinct species, *E. cæsia*, which occasionally wanders to Heligoland; where, by the way, the Yellow Bunting is common on migration in spring and autumn.

The nest, constructed of dry grasses and a little moss, with a lining of finer material and hair, is usually placed on or near the ground, in the side of a bank, or among tangled herbage; but often it is built in a bush, and in plantations of young spruces; while exceptionally at a height of seven feet. The well-known eggs, 4–5 in number, are subject to considerable variation in shade of colour, but as a rule they are purplish-white, streaked, spotted and clouded with reddish-purple, and scrawled with long hair-like markings, from which, in some parts, the bird has acquired the name of "Writing Lark": measurements ·85 by ·63 in. Incubation, in which the male takes part, lasts fourteen days, and at least two broods are produced in the year; the first eggs being laid about the middle of April, while nestlings are not uncommon in September. The Cuckoo not infrequently deposits its egg in the nest of this species. The familiar song, often rendered as 'Little-bit-of-bread-and nō chēēse,' may be heard from morning till night during the hottest weather, and even on bright days in winter. In summer both young and old feed largely on insects; in autumn they are partial to blackberries and other wild fruits; while seeds and grain form their principal sustenance in winter, at which season large flocks frequent stubble-fields and even farm-yards. During severe weather the late Mr. Booth observed a flock feeding on the carcase of a horse hung up at some kennels, in Perthshire. In many places this pretty Bunting has been displaced by the House-Sparrow.

The adult male has the throat and head lemon-yellow, streaked with dusky-brown, especially above and behind each eye; feathers of the mantle, coverts, and secondaries reddish-brown with blackish central stripes; quills dusky-brown with narrow yellowish margins; rump and tail-coverts chestnut; tail-feathers chiefly dark brown, with elongated white patches on the lower portions of the two outer pairs; under parts lemon-yellow, with dusky chestnut streaks on the breast and flanks; bill bluish; legs light brown. Length 6·5 in.; wing 3·35 in. In autumn the colours are duller, owing to the pale margins of the new feathers. The female is less yellow and more streaked with brown, while the chestnut tints are nearly absent. The young are much streaked on the under parts, and show no yellow until after their first moult.

THE CIRL BUNTING.

EMBERIZA CÍRLUS, Linnæus.

The Cirl Bunting is a resident in the south of England, and was added to the British list by Montagu, who found it breeding in Devonshire; while subsequent observations have considerably extended our acquaintance with its range. Upon this point a valuable paper by Mr. Aplin (Zool. 1892, pp. 121–128 and pp. 174–181) should be consulted for details. The bird is known to be fairly common—though very local—from Cornwall to Kent, and upon the slopes of the valleys of the Thames and its tributaries as far as Gloucestershire; also on the chalk-hills of Hertfordshire and Bedfordshire, especially in the neighbourhood of Tring; it has also been found breeding in Warwickshire, Worcestershire, Herefordshire and Salop. In Wales it has decidedly spread of late, and is known to have nested in Brecon, Glamorgan, Cardigan, and Denbighshire, while it has occurred in other parts of the Principality. In East Anglia it is rare, only five examples being recorded for Norfolk; in Northamptonshire and the Midland counties it is of accidental occurrence, and to Yorkshire it is a rare visitor; while in Durham, Northumberland and Cumberland it is unknown, though it has strayed to Lancashire. In Scotland, at long intervals, three stragglers have been taken: one near Edinburgh, one in Aberdeenshire, and one in Roxburghshire. In Ireland no authenticated example has been obtained.

The Cirl Bunting has only twice been obtained (in spring) on Heligoland, and is of rare occurrence in Holland and Belgium. In summer it is found from France on the west to Bohemia on the east; while southward it is resident from the Spanish Peninsula to Greece, Southern Russia, Turkey, Asia Minor, and the islands of the Mediterranean. The late Lord Lilford found it breeding up to 4,000 ft. in the mountains of Algeria, and in winter it is partially migratory from the north as far as the south of its range.

The nest, similar to that of the Yellow Bunting, but often with rather more moss, is placed in a bank among the stems of a hazel or other bush, though sometimes in furze or juniper at a little distance from the ground. The eggs, 4–5 in number, are purplish-grey with almost black markings, bolder, as a rule, than on those of the preceding species and with fewer hair-lines: measurements ·85 by ·63 in. The first clutch is laid in May, the second in July; and on the chalk-hills of Surrey, where the bird is not uncommon, I have found that the Cuckoo is rather partial to its nest. The young are fed chiefly on moths, grasshoppers, and other insects; but later, grass seeds and grain are eaten, while in the south of France, during snowy weather, I have seen small flocks feeding, along with Sparrows and other Finches, on the refuse in the streets. Although unobtrusive, my experience is that the Cirl Bunting is anything but a shy bird; on the contrary it will at all seasons allow a very near approach and close inspection, while if disturbed it does not fly far. The note is like that of the Yellow Bunting, but without the "no cheese," and is nearly expressed by the French name for the bird, "zizi." In the bright climate of the south the song may be heard throughout the greater part of the year, except when the bird is moulting.

The adult male has a lemon-yellow streak from the forehead over each eye; lores and ear-coverts black; crown and nape olive streaked with black; upper wing-coverts greenish-grey; mantle and secondaries darker chestnut-brown and the rump decidedly less rufous than in the Yellow Bunting; quills and tail-feathers about the same as in that species; throat black, followed by a pale sulphur-coloured collar; below this a broad olive grey band, succeeded by chestnut-brown stripes which run down the flanks; belly sulphur-yellow; bill dark horn above, bluish below; legs yellowish. Length 6·5 in.; wing 3·25 in. The female has the throat pale buff, no yellow on the crown, and hardly any on the breast or under parts, which are streaked with dark brown; upper parts less rufous than in the male. The young are rather duller than the female.

THE ORTOLAN.

EMBERIZA HORTULÁNA, Linnæus.

This Bunting was first described as a visitor to England from a bird taken alive in Marylebone Fields, a little before 1776, and this is now in the Museum of Newcastle-on-Tyne, as well as a specimen caught on board a collier off the Yorkshire coast in May 1822. In November 1827, a male was killed near Manchester. In Sussex four or five examples have been taken in spring and autumn since 1841; and an immature bird was killed in the Scilly Islands early in October 1851. Several have been captured near London since 1837, and from that time onwards such increasingly large numbers of live Ortolans have been annually imported from the Continent that occurrences in the home-counties are open to suspicion, as escapes are notorious. One was killed on Lowestoft Denes in May 1859; an immature bird was shot from among some Linnets, at Cley, Norfolk, on September 12th 1884, another on September 5th 1889, and a third on September 15th 1892; while at Easington, Yorkshire, one was obtained on October 11th 1889. In Scotland two examples were obtained in November 1863 near Aberdeen, while two males were shot on the Isle of May, on May 2nd and 5th

1885. A. G. More states that in the Museum of Science and Art at Dublin there is a specimen said to have been taken in co. Clare previous to May 1852.

The Ortolan visits Heligoland in large numbers on the spring as well as the autumn passage, and is found in summer as far north as the Arctic circle in Scandinavia; but eastward, its northward range gradually recedes to about lat. 57° in Russia. South of the Baltic the bird is irregularly distributed throughout Europe, and, though local, it is fairly common at no greater distance from this country than some districts in the north of France, Flanders, Dutch Brabant &c. It is an eminently migratory species. Even in the south of Europe (where it is rather partial to low bushes on stony hill-sides) it is only a summer-visitor; in Northern Africa, where it breeds in comparatively small numbers, it goes as far southwards as Abyssinia for the winter; while in Palestine, Asia Minor, Persia, Turkestan, and Siberia as far as the valley of the Irtish, it only passes the summer, occasionally visiting the north-west of India. I have known the Ortolan to arrive on the French side of the Pyrenees as early as March 23rd; the return begins in August.

The nest, built in the latter half of May, of dry grass and roots with a lining of fine bents and hair, is always on the ground, and generally in open fields, though sometimes among coarse herbage or under small bushes. The eggs, 4–6 in number, are pale purplish-grey, distinctly spotted and very little scrawled with purple or black: measurements ·78 by ·62 in. The natural food consists of beetles and other insects as much as seeds, but in confinement the bird feeds greedily upon oats and millet, until it attains the fatness which is proverbial. The note, which is rather metallic, may be syllabled as *tsee-ah, tsee-ah, tsee-ah, tyur.*

The adult male has the crown and nape greenish-grey; cheeks dusky; feathers of the back, wing coverts and secondaries fulvous-brown, with dark central stripes; rump reddish-brown; tail-feathers brown, with oblong patches of white on the three outer pairs; throat sulphur-yellow, with a dusky streak from the gape downwards on each side; pectoral band olive-grey; lower breast, belly and under tail-coverts warm chestnut; bill dull red; legs brownish-orange. Length 6·25 in.; wing 3·3 in. Males in their first spring have the rump dull striated brown; no white on the third inner pair of tail-feathers; paler under parts. The female has the head greener and more streaked; upper parts duller; gorget yellowish-buff streaked with brown; under parts yellowish-buff.

THE SIBERIAN MEADOW-BUNTING.

EMBERIZA CIOÍDES, Brandt.

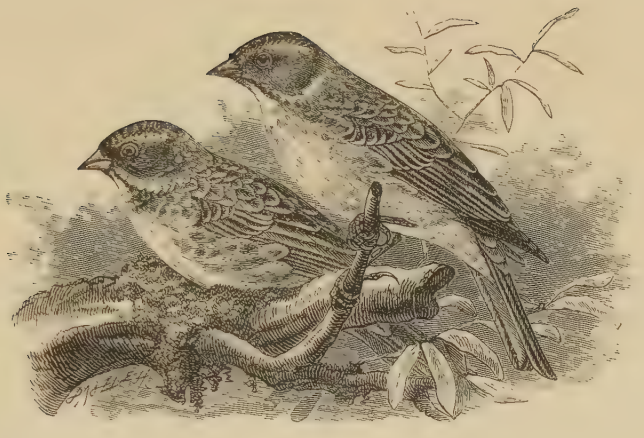
In 'The Ibis' 1889, pp. 293, 294, Canon Tristram stated that Mr. R. W. Chase, of Birmingham, had lately obtained a specimen of this species obtained at Flamborough, Yorkshire. It was said to have been taken by a fisherman named William Gibbon, in November 1886, and was mounted from the flesh by Mr. Matthew Bailey, the well-known bird-preserver at Flamborough (Yorkshire 'Naturalist' 1889, p. 356). I have lately had an interview with Mr. Bailey, and the history of the specimen appears to be quite satisfactory.

The Siberian Meadow-Bunting has not yet been obtained on Heligoland, nor in any part of the Continent. Taczanowski says that it is widely distributed in Turkestan, Western and Eastern Siberia, Mongolia, Manchuria, Corea, and over a great part of China. It must be mentioned, however, that the bird which breeds at Kiukiang on the Yangtse (see Styan, 'Ibis' 1891, p. 354) is distinguished by some ornithologists as *E. castaneiceps*, and Seebohm ('Ibis' 1889, p. 296) expressed an opinion that the Flamborough specimen approached the Chinese rather than the typical Siberian form. I have examined many examples in the Natural History Museum, and, without expressing an opinion as to the very fine distinctions, I treat the two forms as constituting one species in the present article.

Mr. Kibort, who collected for Seebohm, obtained this Bunting in

summer and autumn at Krasnoiarsk, in lat. 56° N. on the Yenesei, and accounts of its breeding in Southern Baikalia, Daüria, and Mongolia are furnished by Godlewski, Dybowski, and Prjevalski. The nest, built in the second half of May, of dry bents with a lining of hair and finer materials, is placed at the foot of a bush—frequently a wild apricot—often on a ledge of some precipice or steep hillside. The eggs, usually 4 and seldom 5 in number, are white, with a violet tinge, spotted and scrawled with dark brown or black: measurements about ·86 by ·62 in. The song of the male is said to be pleasant, though interrupted, like that of most Buntings.

The adult male has the lores black; crown and nape chestnut-brown; a whitish stripe above and behind each eye; cheeks rather deeper in colour than the crown; from the gape to the cheek passes a dull white stripe, and below this a broad black moustache-like streak; chin and throat white, merging into grey on the sides of the neck; across the breast a deep chestnut band, flanks paler, belly whitish; mantle chiefly chestnut, streaked on the upper back; inner secondaries with blackish centres and warm buff edges; quills ash-brown; middle tail-feathers chestnut, the next three pairs umber-brown, and the two outer pairs black at their bases with white terminal halves; legs pale flesh-brown. Length 6·5, wing 3·4 in. The female has little more than streaks of chestnut on the crown and a very slight pectoral band, while her general colours are paler. The young male is at first similar to the female, but by December the warm chestnut-colour becomes marked and characteristic.



THE RUSTIC BUNTING.

EMBERIZA RÚSTICA, Pallas.

The first example of the Rustic Bunting known to have occurred in England was caught near Brighton, on October 23rd 1867, and was shown alive to the late Mr. G. D. Rowley; it is now in the collection of Mr. T. J. Monk of Lewes. A second, identified and recorded by Mr. W. E. Clarke (Zool. 1881, p. 465), exhibited at a meeting of the Zoological Society, and now in the York Museum, was shot on the Holderness coast, Yorkshire, on September 17th 1881, the same day on which a young bird of this species was obtained at Heligoland by Gätke. The late Lord Lilford stated (Zool. 1883, p. 33) that a young male was sent to him in the flesh, which had been taken by a bird-catcher at Elstree reservoir, near London, on November 19th 1882.

The Rustic Bunting is an eastern species which is gradually extending its range westward, and is now known to wander to Sweden, while it occurs annually and even breeds in East Finland. Gätke possessed eight specimens taken on Heligoland (two of them in April), and as many more have been obtained there; while stragglers have occurred from time to time in Holland, Germany, Austria, the south of France, the north of Italy and twice in the south-east (Apulia), and once near Constantinople. From Archangel eastward it is found, increasingly, across Siberia, visiting Kamchatka and even Bering Island; while the late Dr. von Middendorff found it paired and apparently nesting in the Stanovoi

Mountains, and it is common in Transbaikalia and Amurland. Southward, it is abundant on passage in Mongolia, and, according to Blakiston, it is common in the southern part of the main island of Japan in winter, as well as on Yezo in summer. In the cold season it is found in China as far south as Shanghai; and it is supposed to breed in the mountainous regions to the north of Mongolia, and in Turkestan, as well as in Northern Siberia. In Western Siberia it appears to be very local.

Nothing was known to Taczanowski of the reproduction of this Bunting in Siberia up to 1889; but Mr. Dresser informs me that he has examined three clutches of eggs taken on 4th–5th June by Mr. Sandman, who discovered the breeding-haunts in North East Finland in 1886. In these clutches, of 5–6 eggs, the general colour is greenish-grey, with olivaceous brown blotches (not distinct spots), but without any scrawling, while sometimes the ground-colour is reddish: average measurements ·78 by ·58 in. The bird arrives in Northern Russia about the beginning of May, and frequents the open portions of swampy fir-woods, where it is supposed to nest, as in such situations Meves met with two broods in July. The young are said to feed upon oats and other grain. The song is described by von Middendorff as rich and melodious, while the call-note is a sharp cry, not unlike that of the Redwing.

The adult male in breeding-plumage has the lores, crown, and ear-patches black; from above each eye to the side of the neck a broad white stripe, and a small patch of the same colour on the nape; mantle, upper wing-coverts and rump rusty-chestnut, with some blackish streaks on the upper back; greater and middle wing-coverts with broad white tips, which form two conspicuous bars; secondaries with dark brown centres and rufous margins; quills ash-brown; tail-feathers chiefly dark brown, but the exterior pair with the greater part of their webs white, and the second pair with a long white streak from near the base to the tip of the inner web; throat and belly white; breast broadly banded with rusty-chestnut, and flanks streaked with the same colour; bill dark brown above, yellowish below; legs pinkish-yellow. Length 5·45 in.; wing 3·1 in. In the female the head and ear-patches are brownish, mottled with black, the chestnut tints on the back and chest are less pronounced, and the dark streaks are conspicuous. The young bird in August has the upper parts warm tawny-brown with blackish streaks; under parts dull white, streaked with dark brown, and suffused with rufous-buff, with a faint chestnut tinge on the breast and flanks.

THE LITTLE BUNTING.

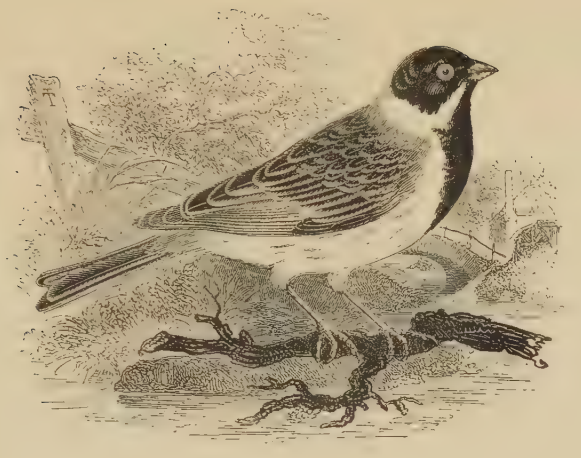
EMBERIZA PUSÍLLA, Pallas.

The only British example yet recorded of this smallest of European Buntings was brought, on November 2nd 1864, to the late Mr. Swaysland of Brighton, and was identified alive by the late Mr. G. D. Rowley. It was subsequently exhibited before the Zoological Society, and now forms part of Mr. T. J. Monk's fine collection of Sussex birds. Other wanderers may have occurred and been overlooked.

The Little Bunting has been obtained near Lund, in Sweden, on the spring migration of 1815; also once in East Prussia; at long intervals four or five specimens have been taken in Holland; two near Antwerp, in Belgium, in autumn; and on Heligoland about thirty passed through Gätke's hands, chiefly in September and October. In the south-east of France the bird is said to occur almost every autumn, and along the Riviera to Liguria and Northern Italy it is not very uncommon on passage, while its wanderings extend to Apulia and the Island of Sardinia; and stray examples have been obtained in Germany, Austria, the neighbourhood of Constantinople, Smyrna and Beyrout, as well as twice in Algeria. In summer the bird is found in Northern Russia as far west as Onega, while eastward from Archangel and the valley of the Dwina it increases as far as the Taimyr Peninsula, and reaches across Siberia to the mountains beyond Lake Baikal, and the Amur district. On passage it visits Mongolia, and winters in China, Burma, Assam, the Andaman Islands, and the hill-districts of India.

Von Middendorff was the earliest discoverer of the eggs of the Little Bunting. Seebohm found the species extremely abundant in the valley of the Yenesei from June 1st onwards, before the snow had sufficiently melted to make the forest penetrable, and took his first nest on the 23rd of that month, on the south bank of the Kuraika, a tributary of the Yenesei. The structure was in a hole made in the dead leaves, moss and grass, carefully lined with fine dry bents, and contained 5 eggs; two other nests afterwards obtained were lined with reindeer-hair, and contained respectively 5 and 6. Those of the first clutch are described as almost exact miniatures of Corn-Bunting's eggs: the ground-colour being of a pale grey, with bold twisted blotches and irregular spots of very dark grey, and equally large underlying shell-markings of paler grey; the others were redder or browner in ground-colour; measurements ·63 by ·56 in. Mr. H. L. Popham obtained a far larger series on the Yenesei in 1895, and again in 1897; the variation in colour and markings being remarkable. As a rule the bird was extremely tame in its breeding-haunts, though in winter the late W. R. Davison found it excessively wild in Tenasserim, when in flocks; in summer it appears to be partial to the younger woods composed of a mixture of pines, firs, alders and birches. All travellers, who have had the opportunity of observing it, describe its song as low and sweet, more like that of a Warbler than of a Bunting, while the call-note resembles the words *tick*, *tick*, *tick*. The food consists of insects in summer and of seeds in winter.

The adult male in breeding-plumage has the crown and sides of the head rich rust-colour, with a broad black stripe from above each eye to the nape, behind which is a dull whitish collar; mantle and rump reddish-brown with blackish streaks; wing-coverts brown, tipped with buffish-white; quills ash-brown; tail-feathers the same, with longitudinal white terminal patches on the two outer pairs; chin and throat pale chestnut; upper breast and flanks dull white, thickly streaked with black; belly whitish; bill horn-brown; legs pale brown. Length 5·25 in.; wing 2·75 in. In the female the black on the head is duller, the median stripe is less pronounced, and the general tints are paler. In the young bird the central stripe on the crown is buff, and the two side stripes are reddish-brown with dark streaks; the secondaries are broadly edged with rufous-brown, and the under parts are more streaked and mottled with black.



THE REED-BUNTING.

EMBERIZA SCHŒNICLUS, Linnæus.

This bird is often called the Reed-Sparrow, and has, unfortunately, also been known as the Black-headed Bunting, which has led to confusion with the totally different species already described (p. 205). It is resident and generally distributed throughout Great Britain and Ireland, breeding sparingly even in the Outer Hebrides and the Orkneys, though only a rare visitor to the Shetlands. In summer it frequents fairly damp spots, whether on the banks of sluggish streams bordered by alders, osiers and sedge, or rush-grown places on swampy moorlands. In winter it sometimes assembles in flocks, and Booth found from forty to fifty birds roosting on patches of reeds by small marsh dykes ; at that season also, in search of food, it often shifts its haunts to stubbles and other places at some distance from water. At intervals large numbers have been known to cross the North Sea from the Continent and visit our east coast in autumn, while a similar migration has been noticed on the shores of Ireland.

The Reed-Bunting inhabits suitable localities in Europe from the vicinity of the North Cape to the Mediterranean, though in the northern portions it is partially migratory, while it occurs irregularly on Heligoland. In Spain and the extreme south, however, it is chiefly observed during the winter, and comparatively few remain to breed. It occurs in North-western Africa, yet in the North-east and in Egypt it seems to be uncommon, and to Asia Minor it is only a winter-visitor. Eastward, it is found across Siberia to Kamchatka ;

but South-eastern Siberia, Mongolia and China are inhabited by a smaller race, which has been called *E. passerina*, with the black and white colours in stronger contrast and the rufous less pronounced. In Southern Spain, Southern Italy and Sicily, a resident form with a larger bill has received the name of *E. palustris*; while further east, from Astrakhan to Turkestan and Yarkand, a bird with a still larger bill, and also paler in colour, is distinguished as *E. pyrrhuloïdes*. Few authors agree as to the nomenclature of these supposed species, or where the lines of distinction between them are to be drawn; nevertheless Dr. Sharpe (Cat. Birds Brit. Mus. xii. p. 473) has placed the two last with a Japanese form in the genus *Pyrrhulorhyncha*, which Professor Giglioli instituted in 1865.

The nest, commenced in the latter part of March or early in April, is usually placed upon the ground, at the foot of a tuft of rushes or of the stems of young willows and shrubs; frequently in herbage on the side of a bank; occasionally on young spruce-firs or on bunches of reeds, at varying elevations. The materials employed are dry grass, moss and withered flags for the exterior, with bents, hair and the feathery tops of reeds for the lining. The eggs, 4–6 in number, are purplish-grey—sometimes with a buffish tinge—boldly spotted and streaked with darker purple brown: average measurements ·77 by ·59 in. The Cuckoo is moderately partial to the nests of this species. Two, and occasionally three broods are produced in the season. The hen sits very closely, and both she and the male feign lameness and practise other devices to divert attention from the young. In summer the food consists of insects, such as caterpillars and small white moths, also small fresh-water crustaceans and molluscs; later in the year, seeds of marsh-plants and grain are consumed. The song of the male is loud and stammering, ending with a long-drawn *zississ*; the call-note resembles the word *tschee*.

The adult male has the head and throat deep black, with a broad white line from the base of the bill joining a collar of the same colour; mantle, wing-coverts and secondaries warm reddish-brown, with dark centres to the feathers; quills dull brown; tail-feathers blackish, with oblique white patches on the two outer pairs; belly whitish; flanks dusky, streaked with brown; bill and legs dull brown. Length 6 in.; wing 3·1 in. In autumn the black on the head and throat is obscured by the buffish-brown tips of the feathers. The female is rather smaller, much duller in colour, and has a reddish-brown head with darker streaks, while the eye-stripe is buffish-white and the throat is merely streaked with black on a buffish ground. The young resemble the female.

THE LAPLAND BUNTING.

CALCÁRIUS LAPPÓNICUS (Linnæus).

The Lapland Bunting or "Longspur" was first recognized as a visitor to our islands by Selby early in 1826, when one was sent from Cambridgeshire, with some Larks, to Leadenhall Market; while subsequently, at long intervals, examples have been obtained near London, in Lancashire, Westmoreland and Durham, near Whitby on the spring migration, in Lincolnshire and Norfolk, near Shrewsbury, and several on the coasts of Kent, Sussex and Hants. Only about forty specimens had, however, been taken in England (almost all on the autumn migration) up to 1892, when there came a great invasion, chiefly on the East coast, followed by larger numbers in 1893, when flocks were observed near Flamborough and in Lincolnshire. In Scotland two specimens are said to have been obtained in Caithness, and in October 1892 others were taken in the Orkneys and Shetlands. In Ireland Mr. Barrington received a female from the Fastnet Rock, on October 16th 1887.

In summer the Lapland Bunting inhabits the greater part of the circumpolar regions, being found on both sides of Greenland up

to 75° N., in Jan Mayen, Arctic Europe (Kolguev abundantly, Vaigatch, Novaya Zemlya and Franz Josef Land sparingly), Arctic Asia to the Liákov Islands, and in Arctic America. To Iceland, however, it is merely a wanderer from Greenland, while it has not been recorded from Spitsbergen. It is only at considerable elevations, such as the Dovrefjeld in Norway, that it is found breeding to the south of the Arctic circle; but it becomes abundant in Lapland, while in Northern Siberia it is, perhaps, the commonest bird on the *tundras*. In Asia it migrates further south than in Europe, and reaches 30° N. lat. in China; whereas it is rare in South Russia or Northern Italy, and unknown in Spain. In Central Europe its occurrences are accidental, but further north they are more frequent, and are regular on Heligoland in autumn. In North America this species breeds up to lat. 73°, and winters in South Carolina, Kansas and Colorado.

Swampy moorlands—beyond the limit of forest growth—with tussocks of grass and stunted willows or birches, are the favourite summer-haunts of the Lapland Bunting, but occasionally it inhabits dry and bushy spots. The nest, built early in June, is placed in a hollow of some little mound or grass-clump, and is made of dry bents and roots, but its thick lining of feathers at once distinguishes it from nests of the Red-throated Pipit and other birds frequenting such localities. The 4–6 eggs are pale greyish- or reddish-brown, spotted, blotched and slightly scrawled with darker shades of brown: measurements ·82 by ·58 in. The song of the male is generally uttered on the wing; the bird rising from some low bush, and hovering above it, like a Tree-Pipit. The call-note is a plaintive whistle. The food consists of insects as well as seeds in summer, and of the latter, with larvæ, in winter.

The adult male in summer has the crown, cheeks, throat and breast black; a broad white streak over each eye and down the sides of the neck; hind neck broadly banded with bright chestnut; feathers of the back, rump, wing-coverts and secondaries tawny-brown, with blackish centres and paler margins; quills dull brown; tail-feathers dark brown, with long white patches on the inner webs of the two outer pairs; belly white, with broad black streaks on the flanks; bill yellow, with the point black; legs black; hind claw nearly straight, and longer than the toe. Length 6·25 in.; wing 3·6 in. In the female the crown, ear-coverts and chestnut collar are streaked with brown and black; the upper parts paler; throat white, with an irregular blackish gorget. The young bird is still duller in colour. In winter both sexes have pale rufous margins to the upper feathers.

THE SNOW-BUNTING.

PLECTRÓPHENAX NIVÁLIS (Linnæus).

The Snow-Bunting is principally a cold-weather visitor to the British Islands, frequenting the Shetlands from September onward, though seldom reaching the east coast of England until October, and generally returning northwards in March or April. For more than a century, however, pairs had been noticed in summer on several of the higher mountains of the Scottish mainland, where they undoubtedly bred, but it was not until July 1886 that Messrs. Peach and Hinxman discovered the nest and young in Sutherland. Next, Mr. J. Young took a nest with five eggs in June 1888; while in 1893 a nest was found by several ornithologists in the Cairngorms, and the species is evidently on the increase there, as well as on Ben Nevis and other mountains. In the Shetlands, Saxby had already obtained a nest with three eggs on Unst, and others have been taken on Yell.

In the Færoes many Snow-Buntings breed, and in winter they are abundant there, as they are throughout the year in Iceland; while northward, Col. Feilden found them nesting on Grinell Land in 82° 33′ N. In Spitsbergen, Franz Josef Land, Novaya Zemlya, Siberia, and the Arctic regions generally, this species is widely distributed in summer; migrating southwards in winter to Georgia

in North America, Japan, Northern China, Turkestan, South Russia, the shores of the Mediterranean, Malta, Northern Africa, and occasionally to the Azores. It is of annual occurrence as far as the central portions of Europe, but its visits south of the Alps are exceptional.

Near the southern extremity of its breeding-range the Snow-Bunting builds in the "screes" or stony sides of mountains, but in the Færoes, Spitsbergen, and the high north, the nest is often but little above sea-level, generally in some crevice behind or under rocks and boulders, or among the piles of drift-wood which fringe the shores of the Arctic Sea, though sometimes fully exposed. It is formed of dry grass and moss, lined with a few hairs and many feathers—especially those of the Ptarmigan; the 4–6 eggs are greyish-white, spotted and blotched with brownish-red and purplish-black: measurements ·86 by ·62 in. While the female is sitting the male utters a low and melodious warble, often hovering in the air; the call-note is a long-drawn *tsee*. In summer both young and old feed principally on mosquitoes and other insects, but in autumn and winter they live on seeds, and do some damage to newly-sown corn. On the ground the Snow-Bunting runs with rapidity; it also hops, and has frequently been observed to perch on trees.

The adult male in breeding-plumage has the mantle, inner secondaries, terminal part of primaries, and the six central tail-feathers, black; the rest of the plumage mostly white; bill, legs and feet black; hind claw shorter than its toe. Length 6·65 in.; wing 4·4 in. In the female the head and neck are streaked with greyish-black, and the upper parts are dull black, except the secondaries, which are chiefly white. In autumn the bird (as figured) has the feathers of the upper parts broadly edged with pale chestnut, and the bill yellow with a black tip: in this state it has been called the "Tawny Bunting." In winter the chestnut margins are abraded and are succeeded by white. The young bird is greyish-brown, with darker spots on both upper and under parts; a specimen is figured in Messrs. Harvie-Brown and Buckley's 'Fauna of Sutherland &c.'

Males of the introduced American Red-winged Starling, *Agelæus phœniceus*, have been captured in this country; while *Icterus baltimore* has been recorded from the Shetlands (Zool. 1890, p. 457). Attempts have also been made to swell the British list by including in it escaped examples of the American Meadow-Starling, *Sturnella magna*; the American Rusty Grackle, *Scolecophagus ferrugineus*; and the Indian Mynah, *Gracula religiosa*.

THE STARLING.

STÚRNUS VULGÁRIS, Linnæus.

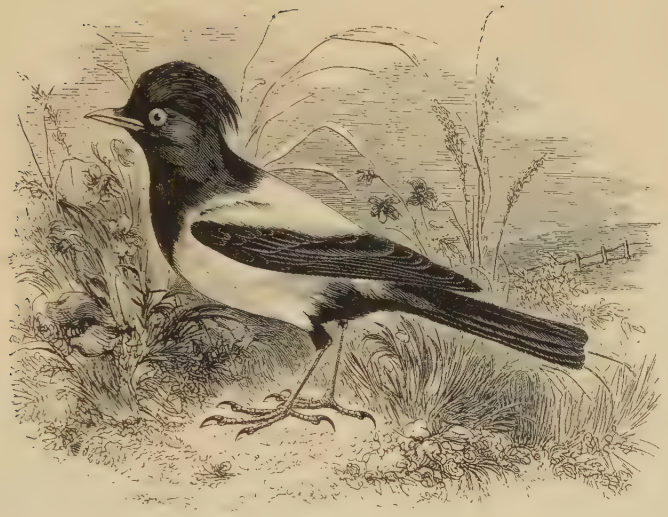
The Starling or Stare, now generally distributed throughout the United Kingdom, has materially increased during the last forty years both as regards numbers and range, in Wales, the west and north of England, and Ireland. In Scotland also, it is now common in many districts in which it was either rare or unknown within the memory of persons hardly past middle-age; in the Shetlands and Orkneys, however, it has been resident for at least a century, and for little less in the Outer Hebrides (*Cf.* Harvie-Brown, Ann. Scott. Nat. Hist. 1895, pp. 2–22). Large flocks arrive on our east coasts in autumn, at which season there is also a marked migration westward, and localities in the interior of this country which have been frequented during the summer are then almost deserted, while great numbers seek winter quarters in the south and west of Ireland.

In the Færoes, where this species is common and resident, the

birds have, as a rule, large and particularly broad beaks. In Iceland a solitary specimen was obtained in December 1878, and as long ago as 1851, Holböll procured one in Greenland. In Norway the species occurs as high as Tromsö, but eastward we find its northern extension gradually diminishing, until in the Urals and across Siberia it does not exceed 57° N. lat. Throughout Europe our Starling is, with few exceptions, generally distributed, and breeds as far south as the central provinces of Italy; but throughout the greater part of the Mediterranean basin it is a visitor—often in vast numbers—during the cold season, when it reaches the Canaries. In the Spanish Peninsula, Southern Italy, Sicily, Sardinia &c., the bird found in summer is the unspotted *S. unicolor*; while from Asia Minor to the Altai range and North-western India the representatives are *S. purpurascens* and other closely-allied species.

The nest is usually built in some hole in a tree, cliff, bank, or wall; also (as many persons know to their cost) in chimneys, water-pipes, and under eaves; more often than generally known it is open to the sky in a fir or other tree; while in places where suitable timber is wanting, holes in peat-stacks and even in the turf itself, heaps of stones for mending roads, rabbit-burrows &c., are selected. A large untidy mass of dry grass or straw, sometimes with a little moss, wool and a few feathers for lining, forms a receptacle for the 4–7 pale blue eggs, which measure about 1·2 by ·85 in. When successively removed, as many as forty eggs have been obtained from the same nest in the season. The Starling feeds principally upon worms, slugs, small molluscs, insects and their larvæ; it also eats voles, the young and eggs of other birds, cultivated fruit and wild berries. Its song, imitative powers, habit of congregating in large flocks at roosting time, and aerial evolutions have been described at length elsewhere.

In summer, the adult male has almost the whole plumage glossy black, with rich metallic purple and green reflections; the feathers of the upper parts being tipped with triangular buff-coloured spots; quills and tail-feathers dark brown, with buffish margins; bill lemon-yellow; legs and feet reddish-brown. After the autumn moult the feathers of the upper parts are deeply margined with buff, and those of the under parts are tipped with white. Length 8·6 in.; wing 5·2 in. The plumage of the female is less brilliant and the terminal spots are larger. Until autumn the young bird is uniform greyish-brown above, clouded with white below; in which plumage it is the "Solitary Thrush" of Montagu and others.



THE ROSE-COLOURED STARLING.

PÁSTOR RÓSEUS (Linnæus).

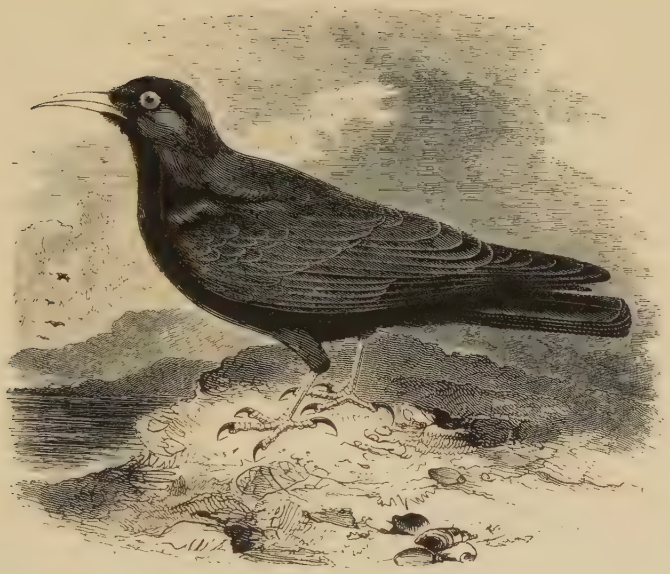
This handsome species, which was first recognized as a visitor to the British Islands in 1742, when Edwards figured an example killed near Norwood, has subsequently occurred at intervals in many parts of England, occasionally in Wales, and often in Devon and Cornwall; though more frequently on the eastern side of the island. As a rule its arrival has taken place between May and October, and the visitors to our shores appear to have been birds which had separated from flocks of their own species and joined those of Starlings &c. In Scotland, the Rose-coloured Starling has rather frequently been noticed in the Orkneys, and has occurred in every district except the Outer Hebrides; in Ireland, though rarer, it has wandered to the extreme west.

As might be expected in the case of a species which has casually visited the Shetlands, the Rose-coloured Starling has reached the Færoes; but up to the present time it has not strayed to Iceland. In Norway one occurred near Trondhjem in 1885, and one at Sitskoven in 1894, while several examples have been obtained in Sweden, Finland and Denmark, and on Heligoland nearly fifty have been noticed in as many years. Over the rest of Europe the bird is an irregular migrant, increasing in frequency to the southward; and, though rarer in the extreme west, it has been found near Seville

in Spain. Until June 3rd 1875 it was merely known as an almost annual summer-visitor to Italy, but on that day commenced an irruption of flock after flock, following up large flights of locusts, and the ruined castle of Villafranca in the province of Verona was soon occupied by some twelve or fourteen thousand Rose-coloured Starlings, which speedily ejected the original feathered inhabitants. The first eggs were laid about June 17th; by July 10th the young were fledged; and by the 14th all had taken their departure. In Bulgaria, the Dobrudscha, Southern Russia, the vicinity of Smyrna in Asia Minor, and in other places, large colonies have been found nesting, though not regularly; while localities inhabited by thousands in one year may be absolutely deserted the next. Eastward, the Rose-coloured Starling extends through Turkestan to Lake Saisan; numbers winter in India; vast flocks traverse Palestine in spring; and on migration the bird has occurred at intervals in North Africa.

The nest, composed of dry grass with a few feathers, is generally placed in some suitable crevice in ruins, railway-cuttings, quarries and cliffs, or among loose stones on the side of a ravine being occasionally open to the sky. The 5–6 eggs are glossy bluish-white: measurements 1·1 by ·83 in. The female sits very closely, and is fed by the male with locusts, apparently the favourite food of old and young; for which reason the bird is protected in the Caucasus and other districts. In India, however, it is destructive to grain during the cold season, and it also devours mulberries, while it will eat cockroaches in confinement. The note is a harsh and continuous babble, which is described by Canon Tristram as deafening when uttered by dense flocks in rapid flight. Although so conspicuous in colour when on the ground or perched upon a tree, yet a small party of birds will suddenly become almost invisible by dropping among oleander bushes, the pink flowers of which exactly match the colour of the breast.

The adult male has the long crest, head, neck and throat glossy violet-black; wings and tail metallic greenish-black; back, shoulders, breast and belly rose-pink; bill yellowish-pink, black at the base; legs yellowish-brown. Length 8·5; wing 5 in. The female is less brightly tinted and has a smaller crest. The young bird at first is greyish-brown above, with buff margins to the wing- and tail-feathers; the throat is white, the lower parts are striated buffish-white, the bill is brown; but in September the moult into the adult plumage commences. In June 1890 a bird with a *red* instead of a black head was taken alive in Bulgaria (P.Z.S. 1890, p. 590).



THE CHOUGH.

Pyrrhócorax gráculus (Linnæus).

The Chough is not only a local but also, apparently, a very capricious species; localities formerly inhabited by it being sometimes abandoned, without any assignable reason. In England at the present day it is not known to breed to the east of the cliffs of Dorsetshire, while westward as far as Cornwall its distribution is irregular. In North Devon there were formerly many small colonies; but in 1887 I found that the bird had almost disappeared from Lundy Island, where about forty pairs used to nest, owing in a great measure to the Peregrine, which, in default of Pigeons, is very partial to Choughs—especially the young. On the sea-cliffs and in some inland localities of Wales it is not rare, while it is still resident in the Isle of Man. In Scotland it has long ago quitted St. Abb's Head, and has almost vanished from the Wigtownshire coast and western mainland, but it breeds on Islay, Jura, and other islands of the Inner Hebrides, up to Skye, and was obtained in September 1896 near Stornoway; though of accidental occurrence on the east side and inland. In Ireland it nests along the rocky coasts and sometimes in the mountains of the south, west and north.

In several of the Channel Islands the Chough was formerly common, and it breeds in some of the rocky portions of the north-western and west coasts of France, as well as in those of the Peninsula. Mountainous situations in the Alps, Carpathians, Parnassus, Urals, Apennines, Pyrenees, Cantabrian range, and the south of Spain, are, however, its favourite haunts, while on the rocky islands of the Mediterranean it is plentiful; it is also resident in the hill-regions of Northern Africa, Abyssinia, Arabia, Asia Minor, the Caucasus and Persia, and throughout the mountain ranges of Asia as far as North-eastern China. As a rule this species is little given to wandering.

The nest, built from the latter part of April to the middle of May, is composed of long wiry stems of heather, or of some deciduous plant, and is well lined with wool and hair. It is frequently placed in some cavity in the roof of a cave; but sometimes in vertical fissures, holes in ruins and grassy banks, or disused lime-kilns. The 3–5 eggs are greyish-white with occasionally a yellow or greenish tinge, spotted and streaked with several shades of dark grey and pale brown: measurements 1·5 by 1·1 in. When flying, the Chough performs a series of curves in the air, alternately rising with a scream and then suddenly dropping with almost closed wings, but on the ground its movement is a short and very quick run. The usual cry is a clear metallic *kling*, but in autumn I have heard flocks uttering *chough-chough* very plainly. The food consists of insects and their larvæ (in search of which stones are often turned over), and occasionally of grain.

In the adult male the plumage is glossy bluish-black, with a slight green tint on the primaries; bill, legs, and feet cherry-red. Length 16 in.; wing 11 in. The female only differs in being somewhat smaller. In the nestling the beak and legs are dull orange, but by September those parts have become as red as in the parent.

A yellow-billed Alpine Chough, *P. alpinus*, shot near Banbury, Oxfordshire, on April 8th 1881, and examined in the flesh by Mr. O. V. Aplin, is now in the collection of Mr. J. Whitaker. The species is eminently sedentary, and it is unlikely that an individual should have wandered so far from its home in the mountains of Central and Southern Europe; on the other hand I believe that Lady Dorothy Nevill, who has been successful in inducing our species to breed in confinement, has purchased importations from the Continent, and it is probable that the bird in question had escaped.

THE NUTCRACKER.

NÚCIFRAGA CARYOCATÁCTES (Linnæus).

The Nutcracker is an irregular visitor to England and Wales, but about thirty fairly authenticated occurrences are on record, principally in the southern half of our island, and all of them, so far as is known, in autumn. In Scotland one was shot at Invergarry and one in Orkney, both in October 1868; while Sir Herbert E. Maxwell has recorded an occurrence in Wigtownshire in 1891. As yet there is no evidence that the bird has visited Ireland.

C. L. Brehm and others have recognised several subspecies of Nutcracker. A form with a stout bill (as in the engraving) breeds in the coniferous forests south of lat. 67° in Scandinavia, some of the islands of the Baltic, West Russia, East Prussia, the Hartz Mountains, the Jura, the Black Forest, the French, Swiss and Italian Alps, and eastward, by the Carpathians, to Transylvania. This form is said to be resident. In Siberia, from the Ob and the Yenesei eastward—perhaps to portions of China—occurs a form with a slender bill and with a greater developement of white spots;

while in birds from Manchuria, Corea, Japan and the Kuril Islands, the bill is moderate, though inclined to be thick. The Siberian form, with slender bill, is known to wander westward in autumn, at irregular intervals and sometimes in large numbers; and there is evidence that this is the chief visitor to Western Europe, including Great Britain. Some form of Nutcracker occurs in the Pyrenees and has been observed in Estremadura; it has also been found in Sicily and Sardinia; but not yet in Greece, Turkey, or the Caucasus. In Kashmir the representative is *N. multipunctata*, and in the Himalayas *N. hemispila*.

The Nutcracker often begins to breed early in March, when the forests are still difficult of access owing to the snow; and although eggs were obtained in the French Alps by the late Abbé Caire as long ago as 1846, it was not until after 1862 that English ornithologists became acquainted with some specimens taken on the island of Bornholm, followed by others from Germany, Switzerland, &c. The rather bulky nest, composed of twigs, with grass, roots, and a little moss and lichen for a lining, is placed from fifteen to thirty feet from the ground in a spruce fir, close to the stem. Sometimes the bird will sit upon only two eggs, but 3 are usual; they are pale bluish-green, spotted with ash-brown, like some light varieties of those of the Magpie: measurements 1·3 by ·95 in. Seebohm was mistaken in supposing that the Nutcrackers on the Yenesei retired in June to breed; they disappeared because it was time to moult, and nearly all his specimens are immature birds. The seeds of fir-cones are a favourite food, especially those of the arolla pine (*Pinus cembra*); also hazel-nuts, of which the bird can carry a dozen in its dilatable pouch and œsophagus; while scraps of meat and refuse are freely eaten. Its flight is dipping, but less laboured than that of the Jay. One of the notes is *gurre, gurre*, and another resembles the noise made by springing a rattle; but before nesting begins the birds become silent and very wary.

The adult male is umber-brown above and below, profusely spotted with drop-shaped white markings on the back and breast, and more sparingly on the throat; quills glossy black; tail-feathers greenish-black, with broad white tips to all except the central pair; under tail-coverts white; bill and legs black. Length 12·5 in.; wing 7·3 in. The female generally shows a rather browner tint on the quills. The fledgling is covered with filamentous hair-brown feathers with white streaks down their centres; but almost as soon as the quills are developed, the back and breast are covered with brown feathers spotted with white, as in the adult.

THE JAY.

GÁRRULUS GLANDÁRIUS (Linnæus).

The Jay is less abundant than formerly, owing chiefly to the dislike entertained for it on account of its egg-stealing proclivities, but partly to the esteem in which its blue wing-feathers are held for making artificial flies. Being, however, an inhabitant of woodlands, and a wary as well as a wandering bird, it manages to hold its own, and is still tolerably common throughout England and Wales. Flocks from the Continent occasionally visit our east coast in autumn. In Scotland the Jay is very local, and its numbers have decreased, though its range has extended northward with the spread of plantations, and now reaches to Glengarry, Inverness-shire. Messrs. Harvie-Brown and Buckley have not found it in Sutherland or Caithness; it is not recorded from the Outer Hebrides or the Orkneys; and Saxby is the sole asseverator of its occurrence in the Shetlands. In Ireland it is very local, and almost confined to the eastern and southern districts.

South of the Arctic circle in Scandinavia, and of about 63° N. lat. in Russia as far east as the valley of the Volga, the Jay is found through-

out the suitable wooded portions of Europe, down to the Mediterranean and Black Seas. In North Africa it is represented by *G. minor*, and also by *G. cervicalis* which has a black crown, white ear-coverts, and deep rufous nape; while forms, to which specific rank has been accorded by some authorities and denied by others, are found intergrading, from the Urals, the Caucasus, Asia Minor and Persia eastward, until the extreme of differentiation is reached in *G. brandti* of Southern Siberia, North China, and the North Island of Japan. The race inhabiting the South Island of Japan differs from the European bird in having some black on the lores.

The nest, often commenced early in April, and fairly well concealed, is an open, cup-shaped structure of short twigs, neatly lined with fine roots and grasses; it is usually not more than twenty feet above the ground, in the branches or the outgrowth of the side of a tree, or in some high bush. The 5–6 eggs are greenish-grey, thickly speckled and often zoned towards the larger end with olive-brown, and sometimes scrolled with a few black hair-lines: measurement 1·2 by ·9 in. The young at first go about in family parties, but subsequently they often unite with others and form bands which at times migrate in large streams, chiefly in a westerly direction. Thus in the autumn of 1876, and again in that of 1882, immense numbers, apparently coming from the great forest regions of Eastern Germany, were observed crossing Heligoland during three consecutive days. The food of the Jay consists chiefly of worms, insects, berries, nuts, beechmast, acorns and fruit, but also to some extent of the eggs and young of other birds. The natural note is a harsh screech, but, as is well known, the bird possesses considerable imitative powers.

The adult male has the head covered with a whitish crest, each feather tipped or striped with black; ear-coverts, nape and back light vinous-brown; rump white; tail-feathers black, the exterior pair brownish; primaries dull black with white margins to the outer webs; secondaries deep black with long white basal patches, the innermost rich chestnut tipped with black; wing-coverts barred alternately with black, white and pale blue; chin pale buff; from the base of the bill backwards a black streak; under parts buffish-white, turning to rufous on the flanks; bill dark horn-colour; iris bluish-madder; legs and feet pale brown. Length about 14·25 in.; wing 7·25 in. The female resembles the male, and the young differ little from the adults except in having brown irides.

THE MAGPIE.

Pica rústica (Scopoli).

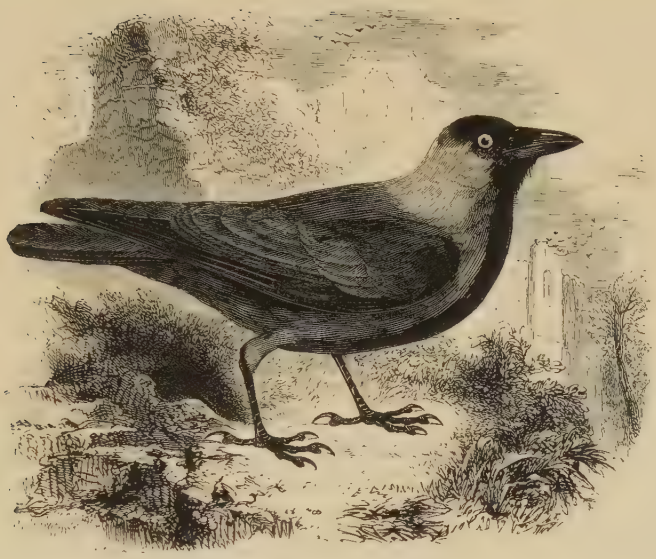
In East Anglia and other game-preserving districts of Great Britain the Magpie is a rare bird, but it is plentiful in Wales and the Marches, as well as in many of the 'hunting-counties,' and may be described as irregularly distributed up to the north of the mainland of Scotland, while it has occurred in the Orkneys. In Ireland, where its appearance was first recorded in 1676 in co. Wexford, it is now very common.

The Magpie seldom visits Heligoland, but from the North Cape in Scandinavia southward it occurs, more or less plentifully, throughout Europe, except in the islands of Corsica and Sardinia. It is not recorded from Palestine, although found in Asia Minor.

Eastward—subject to a variation in the amount of white in the plumage, which has led to the creation of several species—the Magpie is found across Asia to India, China and Japan, as well as in the northern portion of America from the Pacific to Michigan; but in California it is represented by *P. nuttalli*, with yellow bill and ear-patch. Algeria and Morocco are inhabited by *P. mauritanica*, which has a bare blue ear-patch and no grey on the rump; and although Magpies in Spain down to Seville are identical with those from Norway, yet examples from the Alpujarras, where a geologically-recent connection with Africa existed, are distinctly intermediate between the typical and the African species.

The nest, large and domed, is often begun towards the end of March, and is made of thorny sticks on a foundation of turf and clay plastered with earth inside, fine roots and dry grass being the lining. It is generally placed at some height in the fork of a tree, but often in tall—though sometimes in very low—hedges and thorn-bushes; while in Norway it is occasionally under the eaves of houses or on the ground. The late Lord Lilford found several nests in the papyrus of the Anapo, near Syracuse. The eggs, usually 6 but sometimes 9 in number, are bluish-green or yellowish-white in ground-colour, closely freckled with olive-brown: measurements 1·4 by 1 in. In its food, the Magpie is almost omnivorous; the benefits it confers by devouring slugs, snails, worms, rats and mice, as well as the eggs of Ring-Doves, probably counter-balancing its destructiveness to the eggs and young of game and poultry. As showing its boldness, the late Lord Lilford has recorded (Zool. 1888, p. 184) an instance of fourteen or fifteen Magpies attacking a sore-backed donkey in snowy weather, while, after its death from natural causes, several were shot in the act of feeding upon its body. The note is a harsh chatter, kept up incessantly as long as any obnoxious person or animal remains in its haunts; while the manner in which the bird will swoop at an exhausted fox must be a familiar sight to many sportsmen.

The adult male has the head, neck, back and breast black, glossed with green and violet; rump grey; scapulars and belly white; secondaries black, with violet lustre; primaries black, glossed with green, and having an elongated patch of white on their inner webs; tail black, iridescent with greenish-bronze; bill, legs and feet black. Average length 18 in., of which the longest tail-feathers sometimes measure 11 in.; wing 7·75 in. The female is slightly smaller and less brilliant in plumage, and has a shorter tail; while the feathers of the young have comparatively little sheen.



THE JACKDAW.

Córvus monédula, Linnæus.

The Jackdaw is a familiar resident throughout England and Wales. It is also common over the greater part of Scotland, but in the north-west it is somewhat rare, and although it breeds sparingly in Skye it has seldom been noticed in the Outer Hebrides; again, there are now several large and increasing colonies in the Orkneys, but in the Shetlands the bird is as yet an accidental visitor. In Ireland it is, as a rule, abundant; but in Kerry, Donegal and other wild portions of the coast, its place is—or was—taken by the Chough, and it is exceptionally that the two species are found breeding within the same area. The same holds good of Guernsey in the Channel Islands, and on Lundy Island there used to be no Jackdaws; in fact, although generally distributed along our coasts as well as in town and country, this species is sometimes unaccountably absent. Large numbers arrive on our east coast in autumn, and a similar migration occurs at Heligoland.

To the Færoes and Iceland the Jackdaw rarely wanders, and in Norway it is not found breeding north of Trondhjems-fjord; though in Russia it occurs at Mezen, near the Arctic circle. As a rule, it is resident throughout the rest of Europe; but in the south of

France, Spain, Italy, Greece, and some other portions of the Mediterranean basin, including Morocco and Algeria, it is extremely local. After heavy gales from the south-east it has been found in the Canaries. The examples obtained in Eastern Europe, Turkestan, Kashmir, and the valley of the Yenesei in Siberia, have remarkably white and well-defined collars; but from the Altai Mountains to Eastern Siberia and China, the representative species is *C. dauricus*, which has the nape, sides of the neck, lower breast and belly ashy-white.

For its breeding-place the Jackdaw chooses holes and cavities in rocks, churches and castles—ruined or not, the chimneys of inhabited houses, rabbit-burrows and hollow trees; while sometimes the nest is among stalks of coarse ivy on cliffs, or in spruce firs, open to the sky. It is usually a substantial, and sometimes a monstrous, pile of sticks, warmly lined with wool, rabbit's-fur and other soft materials. The 4–6 eggs, laid towards the end of April, are of a pale bluish-green, boldly spotted and blotched with black, olive-brown and violet-grey; sometimes the ground-colour is greyish-white and the markings are very scanty: measurements 1·4 by 1 in. The warm lining is often pulled over the eggs, so as to conceal them; and the late Mr. C. B. Wharton found a clutch smeared and apparently disguised with a coating of clay, taken from a lump which was in the nest. At Cambridge great inconvenience was formerly caused by the appropriation of the labels from the old Botanic Gardens by the Jackdaws; no fewer than eighteen dozen being discovered in one chimney. The food consists largely of insects and their larvæ, worms, and the parasites found on sheep, upon the backs of which the bird may often be seen perched; but the Jackdaw is also a terrible egg-stealer. The flight is rapid but wavering, numerous evolutions being performed in the air to the accompaniment of a short clear note, sounding like *cae*. Although it generally flies in pairs the Jackdaw is at all times more or less gregarious, and especially so in winter.

The adult male has the lores and crown of the head glossy purplish-black; ear-coverts, nape and sides of the neck grey, inclining to white, and producing the effect of a collar; rest of the upper parts glossy black; under parts dusky-black; bill, legs and feet black. Length about 14 in.; wing 9·3 in. The female is somewhat smaller and the grey collar is less defined. The young are dull black, with very little grey on the head and nape. The iris is white at all ages.

THE RAVEN.

Corvus córax, Linnæus.

Although a diminishing species, in consequence of the hatred entertained for it by sheep-farmers and the ease with which it can be trapped, the Raven still maintains itself in the British Islands. In the south its numbers are somewhat influenced by the prices paid for young birds; but even now, from Kent to Cornwall, and along the rocky coasts of North Devon and Wales there is hardly a suitable headland in or near which a pair does not at least attempt to breed annually; while nests built in trees, although far rarer than formerly, are less uncommon than might be supposed at short distances inland. Not long ago several pairs frequented Essex, but the Raven is now rare in the eastern counties and throughout the interior of England. On the hills and fells of the west and north it is still to be found; while in Scotland, and especially in the islands, it is by no means uncommon, provided there are cliffs suitable for its protection. In Ireland it is still resident in the wilder parts, but its numbers have decreased of late years.

The Raven is stationary in the Færoes, where pied birds (occasionally met with in the British Islands and elsewhere) are rather

frequent. It very rarely visits Heligoland. In Iceland and Scandinavia the bird formerly sacred to Odin is abundant, and it is said to have been observed once in Spitsbergen; while southward it is distributed all over Europe, especially in the wooded and mountainous districts, and along the sea-coast. It inhabits the northern half of Asia down to the Himalayas; but between Palestine and the Cape Verde Islands it is represented by the smaller Brown-necked Raven, *C. umbrinus*, or by *C. affinis*, which has the nasal bristles pointing upwards and very long secondaries. North-western Africa, the Canaries and Madeira, are inhabited by another small species, *C. tingitanus*. In America the Raven is found across the continent from the Pacific to Greenland, and southward to Guatemala, but it is local and not common to the east of the Mississippi Valley.

The nest, often built or repaired early in February, though later on the fells, is generally a bulky structure when placed in a crag, but when in trees it is, according to my experience, smaller and more compact. The foundation is a mass of sticks, stems of heather &c., while the lining is of wool, rabbit's-fur, deer's-hair and other soft substances. The eggs, 3–5, rarely 6 or 7 in number, are bluish-green, flecked with olive-brown, sometimes sparingly, but at other times so thickly as to produce an almost uniform ash-brown appearance; exceptionally they are reddish-white, blotched with rufous-brown: average measurements 1·9 by 1·32 in. In defence of its nest the Raven is very bold, attacking even an Eagle; while its harsh, defiant, barking *whow*, *whow*, when once heard, will never be forgotten. It has, however, softer and more musical notes, generally uttered early in the year, while the bird is performing aerial evolutions and frequent somersaults; and its imitative and linguistic powers in confinement are well known. There is a bold sweep in its flight unrivalled by that of any other Corvine bird. In its food it is omnivorous; and where it is persecuted on account of its supposed depredations among lambs and game it is shy and difficult of approach; but in other places it is very tame, and in Majorca I have seen pairs following the peasants, like Rooks, when the ground under the olive-trees was being ploughed. It is a great destroyer of rats.

The plumage of the adult is black, glossed with purplish-blue on the upper parts and the acuminate feathers of the throat; tail slightly rounded; bill, legs and feet black. Length about 25 in.; wing 17 in. The female is slightly smaller than the male, the feathers on the throat are less developed, and her plumage, like that of the young, is less lustrous.

THE CARRION-CROW.

Corvus corone, Linnæus.

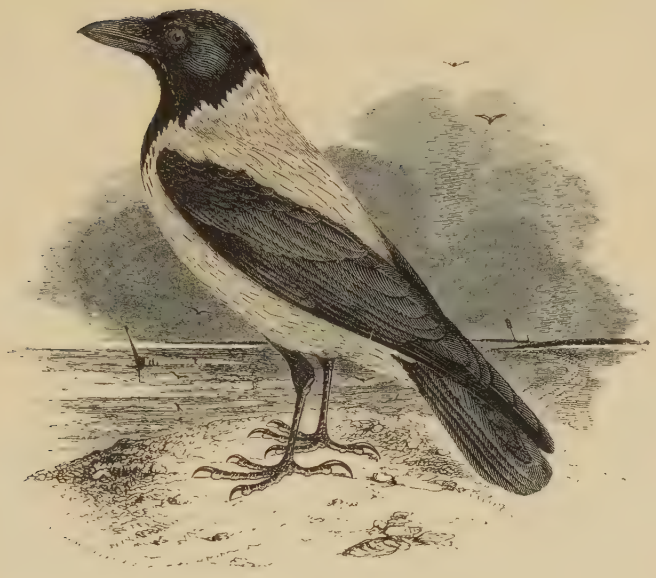
In spite of the constant persecution which this species undergoes from those interested in the preservation of game, it is still fairly common in most of the wooded districts of Southern England and Wales; especially in the neighbourhood of low-lying coasts, estuaries, lakes, and somewhat sluggish rivers. Near London, where it is comparatively unmolested, it is by no means rare, and a few pairs are distributed among the Parks. In the north of England, especially in the Lake district and on the Cheviots, as well as in the south of Scotland and as far north as Perthshire, it is common; beyond which, and in the west (though it has nested in Islay), the prevailing form is the Hooded Crow: the two not unfrequently interbreeding. The Carrion-Crow is recorded from Coll, and is resident, though scarce, in Skye; is said to have occurred in the Orkneys; and visits the Shetlands at long intervals. In Ireland it is extremely rare, its place being taken by the Hooded Crow. Considerable accessions to its numbers take place on the east coast of Great Britain in autumn.

The Carrion-Crow is seldom found in Iceland, and even to the southern portions of Scandinavia it is a very irregular visitor. Its

reported existence near Archangel is open to question, and in the interior of Russia it is decidedly uncommon, though frequent in the Caucasus, the Black Sea district, the valley of the Danube, Greece, and Southern Germany. It rarely visits Heligoland. In Northern Germany its eastern summer-limits are approximately indicated by the valley of the Elbe; while to the west and south it is found breeding as far as the Mediterranean coast of France, the Spanish Peninsula, Northern Italy, Corsica and Sardinia. In Asia, it nests in Turkestan and Kashmir, while in Western Siberia it meets and interbreeds freely with the Hooded Crow; again prevailing, as a larger form, in the forest district between the Yenesei and the Pacific, as well as in Northern China and Japan. The occurrence of our Carrion-Crow in North Africa is doubtful, but visits to Madeira are recorded.

This species seldom makes its nest before the first week in April, generally selecting for the purpose some moderately tall tree which affords a good look-out, or a ledge of rock; but it will also build in a low bush, and even on the ground. The structure is composed of sticks, fine twigs &c., with a warm lining of wool and other soft materials; the eggs, usually 4–5 in number, are bluish-green, spotted and blotched with olive-brown: measurements 1·7 by 1·2 in. The Carrion-Crow probably pairs for life, and is generally to be seen in couples, quartering the ground carefully, with somewhat heavy flight, in quest of food. Carrion, poultry, the eggs of game and water-fowl, leverets, moles, rats, fish, mussels and the refuse of the shore—nothing comes amiss to it; but it will also eat insects, grubs, grain and fruit, like the Rook, and I have seen it on the hill-sides in the Pyrenees as well as in Switzerland in considerable flocks. Its ordinary note is a hoarse croak, but it sometimes emits sounds which may almost be called musical; while in confinement it develops some capacity for imitation.

The adult male has the entire plumage black, glossed on the upper parts with purple and tinged with green on the head, neck and throat; the nostrils are covered with thick bristly feathers, directed forwards; bill, legs and feet black. Length 19 in.; wing 13 in. The female is less glossy, and has sometimes a brown tinge on her plumage. The young bird is still duller in colour. The inside of the mouth is always pale flesh-colour: whereas in the young Rook it is dark flesh-colour, soon turning livid and afterwards slate-colour. The Rev. H. A. Macpherson has recorded a bird of a reddish-fawn colour, the rest of the brood being normal; and Mr. W. Eagle Clarke has described a brindled-grey variety.



THE HOODED CROW.

CORVUS CÓRNIX, Linnæus.

This bird, often called the Grey or Royston Crow, is a regular and numerous visitor to England, especially the eastern districts, from October onwards; but as a rule it departs in spring, though instances are on record of its having remained to breed, and cases of hybridism with the Carrion-Crow are not infrequent in the north. In Wales it is rare, but in the Isle of Man it nests annually. On the mainland of Scotland it is only too abundant, predominating in the north and west, and becoming the representative form in the Outer Hebrides, Orkneys and Shetlands. In Ireland also it is common, and increasing, especially in the south. The majority of the large numbers found in our eastern districts arrive from the Continent, and apparently from Scandinavia.

In the Færoes the Hooded Crow is resident, and it occasionally visits Iceland. In Scandinavia, Finland, Northern Russia, and East Prussia it is common, migrating from the higher latitudes in autumn, at which season large flocks pass over Heligoland and winter in Northern Germany west of the Elbe. These, as a rule, take their departure in March, although some occasionally remain to interbreed with the Carrion-Crow. Colonies of the Hooded Crow are dotted about Central Germany, are frequent in Galizia, and extend

to Slavonia; but in Switzerland, France and Spain, the bird is only a winter-visitor. It nests, however, in the islands of Majorca, Corsica and Sardinia; while on the mainland of Italy, Sicily and in the Cyclades, it is resident. To North-west Africa it is merely a visitor, but in Egypt it is very abundant where trees exist, breeding in February and March; it is also found in Syria; while eastward it can be traced as far as the Persian Gulf, where it meets with the whiter *C. capellanus*. A third race, drab-grey on the lighter parts (named by Mr. Oates *C. sharpii*), visits North-west India in winter, and inhabits Afghanistan, Turkestan, and Siberia as far as Tomsk. The area between that place and Krasnoiarsk—about 350 miles east—is said to be occupied by hybrids between this bird and a large form of the Carrion-Crow; the latter becoming the representative in Eastern Siberia.

In the south of Ireland the Hooded Crow sometimes has eggs by the middle of March (Zool. 1883, p. 337), but in Scotland it is later in breeding. According to circumstances, the nest is placed on inland rocks, sea-cliffs, tall trees, low bushes, clumps of papyrus, on the ground among heather, or even on the roofs of huts. The materials are similar to those used by the Carrion-Crow, and the eggs, 4–5 in number, cannot with certainty be distinguished, but they are often slightly longer, paler, and of a brighter green ground-colour. The habits and food of the two Crows are similar, though perhaps the Hooded Crow is rather the bolder robber; while I have seen a young one greedily devouring the carcase of a recently shot member of the same brood. The call-notes are said to be quite distinguishable by practised ears.

The thoroughbred Hooded Crow has the head, throat, wings, tail and thighs black, glossed with greenish-purple; the rest of the body ashy-grey of varying tint, with a few dark streaks down the centre of the breast-feathers; the remainder as in the Carrion-Crow, the grey colour forming the sole distinction. To some extent the hybrids are fertile, and Seebohm found every intermediate state of plumage between the two forms; a large case of specimens illustrating these gradations has been presented by him to the Natural History Museum at South Kensington. Northern examples of the Hooded Crow are rather larger than those resident in the south of Europe, and also, as a rule, than Carrion-Crows from Scotland. Professor Newton has expressed with his usual perspicacity the reasons for not admitting the specific distinctness of these Crows; but it has seemed expedient to treat them under separate headings in the present work.

THE ROOK.

CORVUS FRÚGILEGUS, Linnæus.

The Rook is even better known than the Jackdaw, owing to its custom of living in noisy flocks throughout the year, and its tendency to select the vicinity of human habitations for its breeding-places. Few rookeries now exist in London, and the same may be said of other spreading cities; but as regards the country, the Rook is generally distributed throughout England and Wales, being especially numerous north of the Tees. In Scotland it has for some years been increasing in numbers and northward range, breeding in Caithness and Sutherland, the Outer Hebrides since 1895, and the Orkneys; while in Skye there are several rookeries. In the Shetlands, where trees are scarce, the Rook is at present only a visitor. The increase of this species is not regarded with favour in Scotland, for in default of other food it undoubtedly pilfers eggs, and in the small area of Renfrewshire it has been held responsible for 6,000 eggs in one year. In Ireland it is common. Numbers from the Continent visit our east coast (regularly) and our south-west districts (irregularly) in October and November, and a considerable return migration has been observed early in the spring.

Flocks of Rooks made their appearance towards the end of November 1880 in Iceland, and the Færoes are sometimes visited. In Scandinavia—whence, as a rule, this species emigrates in winter—it breeds below the line of the fells; it also nests in Finland on the frontier of the St. Petersburg district, and eastward, sparingly, as far as Archangel. During summer it is generally, though somewhat irregularly distributed throughout the rest of Northern and Central Europe; nesting southward down to the vicinity of Biarritz in France, Modena and Venetia in Italy, the Dobrudscha, and the Crimea; but it is only known as a winter-visitor to the Iberian Peninsula and the countries in the Mediterranean basin, where, during summer, the soil is usually too hard to be bored for grubs &c. It nests in the wooded districts of Northern Persia, Turkestan, and Siberia as far as the valley of the Irtish; visiting Afghanistan, Kashmir, North-western India, and Palestine in winter, at which season it is also found in Egypt as far south as Memphis, and occasionally in Algeria. In Eastern Siberia, China and Japan the representative species is *C. pastinator*, in which the throat is feathered, and the plumage purplish-black.

The nest, usually built about the middle of March, and composed of twigs and turf, with a lining of roots and straw, but seldom—if ever—any wool, is generally placed in tall trees, but sometimes in pollard-willows, firs, laurustinus and holly-bushes; occasionally on chimney-tops and ornaments of church-spires, and exceptionally on the ground. In the Orkneys dry tangle and fish-bones are used as building material. The 3–5 eggs are bluish-green, blotched and streaked with olive-brown, like those of the Carrion-Crow but rather smaller: measurements 1·6 by 1·15 in. The food consists chiefly of insects and their larvæ, but practically the Rook will eat anything, and in dry seasons, when protective herbage is scanty, it not only takes eggs if occasion offers, but hunts for them regularly and sytematically, like a Crow. Its note is the well-known *caw*.

In the adult the general plumage is black with a blue gloss; the forehead, lores and throat are bare of feathers, and show a greyish warty skin; bill, legs and feet black; inside of mouth slate-coloured. Length 19 in.; wing 12·65 in. In the young, until the second moult, the base of the bill is bristly, as in the Crow, but the bill itself is more slender, and the inside is deep flesh-colour; the feathers have greyer bases, and the plumage has a bluish tint. The bird does not breed until it is nearly two years old. White, piebald and chocolate-brown varieties are not uncommon; while curious malformations of the bill have been noticed.

THE SKY-LARK.

ALAUDA ARVENSIS, Linnæus.

This favourite songster, known also as the Laverock, is distributed throughout the British Islands (though local in the north of Scotland), and is especially abundant in the vicinity of arable or pasture land. A considerable emigration takes place from the northern districts in autumn; and at that season the flocks of our home-bred birds are augmented by hordes from the Continent, which are sometimes observed arriving on our east coast for days in succession. In Ireland a similar invasion from England takes place.

The Sky-Lark only breeds in small numbers in the Færoes, but flocks sometimes visit that group of islands in autumn. In Scandinavia it nests as far north as lat. 70°, but is comparatively rare beyond the Arctic circle; while eastward it is found, in suitable localities, across Russia, Siberia, and Asia generally north of the Himalayas, as far as the coast of the Pacific, the Kuril and other islands, and Japan. In winter it visits China, North-western India, Afghanistan, Persia, Asia Minor, Palestine and Egypt. During the summer it is found throughout Europe, and even breeds sparsely in the southern portions of the Spanish Peninsula, while in the north-west dark-coloured residents are found on the higher grounds. In autumn a general southward movement takes place, and few Sky-

Larks remain on the northern side of the Baltic; on Heligoland as many as 15,000 have been caught in a single night, and immense numbers are taken on passage, as well as in winter, in the south of Europe. The Sky-Lark visits Northern Africa, where a few breed on the slopes of the Atlas; its migrations extending regularly to the Canaries and occasionally to Madeira. An example was shot at Hamilton, Bermudas, on June 12th 1850; while the importation of this species to the United States, Australia and New Zealand is notorious.

The nest, often commenced in the first half of April, and placed on the ground in a hollow among growing crops, or under the shelter of some tuft, clod of earth &c., is made of dry grass, with a finer lining of the same. The 3–5 eggs are dull grey, thickly mottled and often zoned with olive-brown: measurements ·94 by ·68 in. Incubation lasts fourteen days, and two broods are generally produced in the season. The food consists of insects and worms, with seeds of various kinds during the colder portion of the year, and some grit to aid digestion. When the germination of wheat is delayed, and before the leaf is "in two blades," the Sky-Lark does harm by biting the plantlet; but sentimental persons who own no wheat consider the bird's song to be ample compensation for the injury to farmers. Every one must be familiar with the rapturous thrill of the Sky-Lark, as, rising from the ground, it soars, still singing, until almost lost to sight; but it sometimes utters its song while on the ground, and, exceptionally, I have seen a bird—unmistakably of this species and not a Tree-Pipit—giving forth its joyous carol while swaying in the wind on the topmost branch of a tree some twenty feet in height. Like other members of the family, the Sky-Lark is fond of dusting itself to get rid of insect parasites.

The adult in spring has the general plumage of the upper parts warm yellowish-brown, streaked with dark brown, especially on the crown and back; over the eye a buffish-white streak; quills dark brown with buff outer margins and greyish-white tips, bastard primary very small; tail-feathers with dark brown centres and tawny edges, except the outer pair, which are chiefly white, while the second pair have white outer webs; under parts buffish-white, streaked with dark brown on the throat, breast and flanks; bill dark brown above, paler below; legs yellowish-brown. The dimensions vary greatly: average length 7·3 in.; wing 4·3 in. The sexes are alike in plumage, but the female has shorter wings. In the young bird the feathers are broadly tipped with buff; in autumn both young and old have a tawny tint.

THE WOOD-LARK.

ALAUDA ARBÓREA, Linnæus.

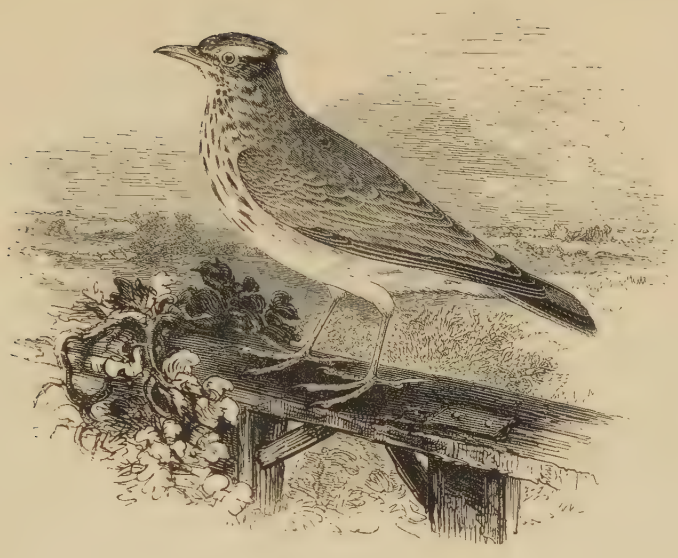
The Wood-Lark is a locally distributed species in England and Wales, being chiefly found during the breeding-season on warm, dry, light soils, especially on undulating ground studded with copses or plantations. Although nowhere plentiful, it is most frequent in some of the southern counties, such as Devon, Dorset, Wilts, and Gloucestershire; it occurs on the Chiltern Hills, and is also fairly distributed along the dry, wooded and rising ground on both sides of the valley of the Thames, as well as over the line of the chalk formation which runs from Buckinghamshire to West Norfolk and Suffolk. In the midland counties it is very local, and northward it gradually becomes scarce; comparatively few breeding in Yorkshire, Lancashire, Cumberland and the Lake district. Up to that point it appears to be a resident in some localities and an irregular migrant in others, while it is a species which has suffered considerably from the persecutions of bird-catchers and to some extent from severe winters; but few records for even the south of Scotland are authentic, and it may be well to remember that the term "Wood-Lark" is often misapplied to the Tree-Pipit. In winter considerable companies are sometimes found in the southern districts of England, especially in snowy weather, but there does not appear to be any important immigration from the Continent. In Ireland this species has bred in cos. Wicklow and Cork.

The Wood-Lark rarely visits Heligoland. In summer it inhabits the southern portion of Scandinavia, as well as Russia below about

60° N. lat., as far east as the Ural Mountains; while it is common in France, Belgium, Holland and Germany. It is also found, in places suited to its habits, in Switzerland, the Pyrenees up to 4,000 feet, Central Spain, and Southern Europe generally, to the Mediterranean, Black and Caspian Seas; its numbers being increased by accessions from the north in winter. At that season it also visits Northern Africa and Palestine, while in the former, and probably in the latter, it breeds on the high ground.

The nest, rather firmly constructed of grass and a little moss, with fine bents for a lining, is generally placed in a depression of the ground, sheltered by a low bush or a tuft of grass, but sometimes in smooth turf. The 4–5 eggs are said by Prof. Newton to be often laid by the middle of March; they are white or pale greenish-white, finely spotted and often boldly zoned with warm brown and violet-grey: average measurements ·83 by ·63 in. They are quite unlike eggs of the Sky-Lark, rather resembling some of those of the Crested Lark. Two broods are produced in this country, but on the Continent the bird does not appear to nest so early as with us; while in autumn young and old rove about in family parties. The food consists principally of insects, supplemented by small seeds and tender herbage. The sweet and flute-like song, fairly indicated by the French name "Lu-lu" repeated several times, is very attractive, and is uttered by day—and not unfrequently by night—almost throughout the year, except during the moulting season; the bird hovering in the air and descending spirally with half-closed wings. This species is partial to sandy or light soils, rough and barren hill-sides sprinkled with bushes, sheep-walks, and stony table-lands.

The adult male resembles the Sky-Lark in the general mottled-brown colour of its upper parts, but it may always be distinguished from that species by its smaller size, more pronounced crest, much shorter tail, more slender bill, and by the very broad buffish-white stripes which run backward over each eye to the nape, where they join and show up the dark ear-coverts; the bastard primary is much longer than in the Sky-Lark, and there is a conspicuous triangular patch of dark brown tipped with buffish-white on the larger wing-coverts; the tail-feathers are chiefly brownish-black with triangular white tips; the throat and breast are yellowish-white streaked with dark brown; belly yellowish-white; legs and feet flesh-brown. Length 6 in.; wing 3·7. The female has shorter wings and shows less crest; the young are more rufous and have light buff tips to their feathers.



THE CRESTED LARK.

ALAUDA CRISTÁTA, Linnæus.

The Crested Lark is a tolerably common bird just across the Channel, for instance at Boulogne, Wimereux and Cape Gris Nez (J. H. Gurney), yet authenticated specimens have seldom been obtained, even in the south of England. The late Mr. Bond had an example obtained at Littlehampton, Sussex, previous to 1845, and another was taken alive near Shoreham on October 20th 1863; while in Cornwall, at intervals, four have been killed in autumn and winter, and one on June 12th 1880. The late Capt. Hadfield's assertion that one was captured in the Isle of Wight, as well as statements that a bird had been taken from the nest near Cambridge and that the species had bred near Dover, lack the requisite confirmation. There are no authentic records from Scotland. In Ireland, a Crested Lark appears to have been shot in co. Dublin prior to February 1836, by Sir W. H. Russell, the celebrated war-correspondent.

The Crested Lark flourishes best in warm countries, but it can bear cold well, though snow interferes with its means of subsistence, and it is resident in small numbers as far as 60° N. lat. in Sweden and Russia. In Denmark, Northern Germany, Holland and Belgium, it becomes more frequent; in the north of France it is fairly common; while in Central and Southern Europe it is abundant,

especially on dry sandy soils, except in Corsica, Sardinia and Malta, in which it is nearly unknown. It is numerous in North Africa, and as far south as Senegal on the west; but there and elsewhere an approach to the desert is generally accompanied by a more sandy tint, and sometimes by an increase of size and a greater development of bill. Allowing for these and other climatic variations, which have led to the fabrication of at least thirty species and subspecies, the Crested Lark may be said to range eastward from Morocco to Abyssinia, Arabia, and Northern China.

The nest, often commenced early in March, is usually placed in some depression of the dry ground, such as a hoof-print, or amongst herbage, but at times on an old wall or bank of earth, or even on the ridge of a low thatched shed in the fields; the materials employed being dry grass and roots. The eggs, 4–5 in number, vary from greyish-white distinctly spotted with brown and violet-grey, to greenish-grey mottled with olive-brown: measurements ·95 by ·69 in. Incubation, in which the male takes part, lasts a fortnight. The Crested Lark is a tame and conspicuous bird, frequenting sandy roads—in which it is fond of dusting itself—and running with great rapidity: I have actually seen it glide beneath a horse when at a slow walk, rather than take wing. Its flight is undulating and resembles that of the Wood-Lark. The bird is not gregarious, and is generally seen singly, or in pairs and family parties. The short but rather liquid, flute-like and melodious song of the male is generally uttered on the ground, though often during a short flight, and occasionally from a bush; the call-note may be syllabled as *coo-hai*. The young are fed on insects and their larvæ, but seeds and grain form the principal food of this species, and in snowy weather it may be seen examining horse-droppings &c.

The general colour of the upper parts is greyish-brown with darker streaks, and often with a sandy tint; while the under parts are buffish-white, with dark streaks on the gorget, and pale brown markings on the flanks. The characteristics of this species are the long, drooping, pointed crest, large bastard primary, orange-tawny hue of the under side of the wing and inner portion of the quill-feathers, and the absence of white from the tail—the feathers of which are tawny brown and black. Owing to the shortness of its tail and wings, the dimensions—length 7 in., wing 4·2 in.—are less than those of the Sky-Lark, though the bird is rather more bulky. The female is slightly smaller and darker than the male; the young bird has the feathers of the upper parts broadly margined with white and buff, and fewer spots on the breast.

THE SHORT-TOED LARK.

ALAUDA BRACHYDÁCTYLA, Leisler.

The Short-toed Lark is a rare wanderer to England, and the authenticated instances of its occurrence appear to be:—one near Shrewsbury, two near Brighton, one near Southampton, one on the Scilly Islands, one near Cambridge, and one in South Breydon Marshes, Norfolk—all in autumn; and one killed near Brighton in April 1858 by a person who saw it alight and begin dusting itself in the road. On July 27th 1888, Mr. Cooper, the taxidermist, of Radnor Street, E.C., showed me a live bird said to have been taken at Amberley, Sussex, on the 18th of that month. In Ireland one was obtained on the Black-rock light-house, co. Mayo, on October 11th 1890, and was sent to Mr. R. M. Barrington in the flesh.

Although this species has been recorded as a visitor to Heligoland, it can only be considered a straggler to Northern or even Central Germany, Belgium, or France north of Paris; but at Blois the late Sir Edward Newton found it breeding, and it is a regular summer-visitant to the districts further south, though said to emigrate in winter. In the Spanish Peninsula it is abundant and—in the southern portions at least—resident; it is so also in North-western Africa, but in the north-east, as far south as Abyssinia, it is only found in winter and on passage, when it is very numerous, and occurs in large flocks. To Italy it is only a summer-visitor, although abundant in the south, but in Malta it is sedentary, and it is found

more or less throughout the year in Greece, Turkey, Southern Russia, Asia Minor and Palestine; while further east we trace it to Persia, Turkestan, the northern half of India, and as far east as Lake Baikal.

The nest is placed at the foot of a tuft of grass, or in a cavity, such as a hoof-print; bleached grass, with a few feathers, wool and hair as a lining, forming the materials. The 4–5 eggs are dull white, mottled and freckled with greyish-brown: measurements ·78 by ·58 in. During the breeding-season the bird frequents dry and sandy soil, and plains where the herbage is somewhat scanty; while its tameness is such as often to cause difficulty in shooting a specimen for identification without blowing it to pieces, and I have seen a bird cut down with a whip in the road. The male utters his short and rather feeble song while perched on some clod or low wall, or during a brief, undulating, and somewhat jerky flight. In autumn and winter large flocks are formed, and in India, according to Jerdon, they darken the air. The food consists principally of small seeds.

The adult has the upper parts pale rufous-brown with darker streaks; a white line over each eye; central tail-feathers dusky-brown, the rest blackish-brown, except the outer pair which are broadly margined with buffish-white; under parts white, with a few brown spots and streaks on the side of the neck, and a buffish tinge on the breast and flanks. The short and conical bill is yellowish-brown; the legs are pale brown; the hind claw is straight and, as a rule, short, but subject to considerable variation. After the moult both upper and under parts have a warm rufous tint, which is sometimes retained until the middle of the following May. Length 5·75 in.; wing 3·5 in. The sexes are alike in plumage. The young bird has the feathers of the upper parts, including the tail, broadly margined and tipped with buff.

This Lark is one of a group of allied species which have been placed by some systematists in the genus *Calandrella*, characterized by the absence of crest, a stout conical bill, comparatively short hind-toe, and an infinitesimal bastard primary. Several of its congeners are found over portions of the same area: for instance, *Calandrella bætica* in the extreme south of Spain, *C. minor* in North Africa and the Canaries, and *C. pispoletta* in the steppe-region east of the Volga. These three, however, are more closely related to one another than to our bird, being distinctly marked with numerous dark brown streaks on the throat and breast; their eggs, moreover, have bold spots on a creamy white ground.

WHITE-WINGED LARK.

ALAUDA SIBÍRICA, J. F. Gmelin.

An example of this Eastern species, which had been captured alive near Brighton on November 22nd 1869, when associating with a flock of Snow-Buntings, was recognized on the same day by the late Mr. G. Dawson Rowley and subsequently exhibited at a meeting of the Zoological Society. It proved to be a female, and is now in the collection of Mr. T. J. Monk of Lewes.

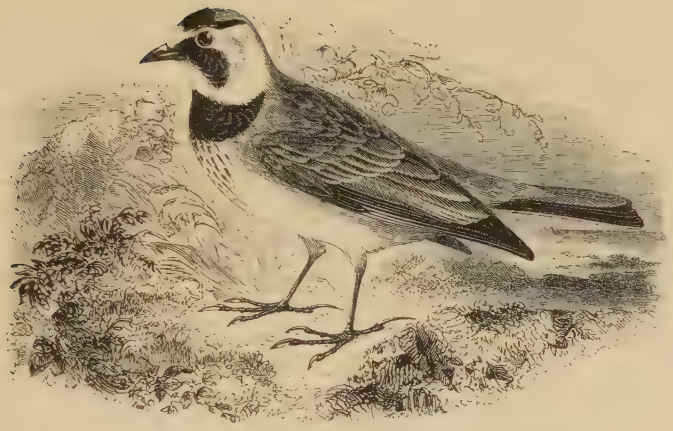
An occasional visit from the White-winged Lark is not surprising, for three specimens have already been obtained in Belgium: one in October 1855 near Liège, another at Malines (or Mechlin) in 1856, and a third near Namur. On Heligoland one was taken on August 2nd 1881, and, although the occurrence of this species is not yet authenticated in Northern Germany, its visits to Poland and Galizia are not infrequent; while stragglers have been recorded—always on the autumn migration—from Trent in Tyrol, as well as Verona and Bergamo in Italy. On the 'black-earth' plains of Russia as far north as Saratov on the Volga this Lark is a common breeding species, and it visits Southern Russia and portions of Turkey in winter; while eastward, it can be traced through the Kirghis steppes to the Altai Mountains, and as far north as to Omsk on the Irtish.

The nest, generally built early in May, is placed on the ground, sheltered under a tussock of grass, and the 3–5 eggs are yellowish-white, spotted and mottled with several shades of brown and violet-grey: measurements ·95 by ·65 in. In Russia the bird does not arrive until after the grass is green, and, according to Eversmann, prefers those portions of the steppes which are most clothed with herbage; while Pallas, who was the first to observe this species on the banks of the Irtish, describes it as frequenting the road-sides and uttering its song—similar to that of the Skylark but shorter—when hovering at a moderate height from the ground. During the cold season it is found in large flocks and is very tame. The food is probably similar to that of other Larks.

The adult male has the top of the head and ear-coverts pale chestnut; lores and eye-stripe dull white; back tawny-brown, with dark stripes down the centre of each feather; upper wing-coverts chestnut, the rest rufous-brown; outer quills dull brown, the inner primaries and the secondaries chiefly white (exhibiting a large and conspicuous bar or patch); tail-coverts and central tail-feathers broadly edged with chestnut, the outer pair of tail-feathers white and the rest chiefly dark brown; under parts white, with brown and rufous spots on the throat, gorget and flanks; under wing-coverts white; bill horn-colour; legs yellowish-brown. Length 7 in.; wing 4·6 in. The female is smaller (wing 4·2 in.), with hardly a tinge of rufous on her brown-streaked crown, and little on the wings, tail or breast. After the autumn moult the plumage is tinged with buff. The young resemble the female. The chestnut tint, white wing-patch, and white under-wing-coverts are sufficiently distinctive of this species.

The White-winged, the Calandra, and other stout-billed Larks have been placed in several genera, the favourite one being *Melanocorypha*; but that name is, at best, misleading, for the Calandra, which is the type, has *not* a black crown, nor would it be easy to define the characters which distinguish that genus from *Calandrella*.

Two examples of the Calandra Lark, *Alauda calándra*, said to have been killed in England, have been recognized in the shops of bird-stuffers at Devonport and Exeter respectively; but the evidence is not sufficient to warrant the introduction to the British list of a species which is very tolerant of confinement and one of the commonest cage-birds in Spain and Italy.



THE SHORE-LARK.

Otócorys alpéstris (Linnæus).

The Shore-Lark was first noticed as a visitor to England in March 1830, when one was obtained on the coast of Norfolk. Subsequently the species occurred, at irregular and sometimes long intervals on the eastern and southern shores of England (seldom on the western side) until the winter of 1869–70, when a considerable visitation took place, chiefly along the east coast. From that time onward, especially in 1879–80 and 1882–83, its numbers have considerably increased, and autumnal arrivals on the coast of Yorkshire are almost annual, while some birds remain throughout the winter, and examples have been obtained on the northward migration in spring as late as April 22nd. In Scotland, where the first specimen was shot in East Lothian by the late Mr. W. W. Evans on January 10th 1859, this species has occurred as far north as St. Andrews, but not on the west coast; while from Ireland it is as yet unauthenticated.

The present species, a member of a well-defined and widely-distributed genus, has undoubtedly spread westward from America in recent times, and is still extending its range in that direction. In the Old World it now passes the summer in the northern regions (or those elevated above the limits of forest-growth) of Scandinavia, Finland and Russia, Kolguev, Novaya Zemlya, Franz Josef Land, and Siberia to the Sea of Okhotsk. On migration it occurs irregularly throughout the greater part of Europe, and occasionally down to the

Black and Mediterranean Seas, though not recorded up to the present from the Spanish Peninsula; while eastward, it descends to Baikalia, Mongolia and Northern China. The area between Bosnia and the Altai Mountains is inhabited by a recognizable species, *O. penicillata*, in which the black on the ear-coverts joins the black on the throat; while a paler Tibetan form has been distinguished as *O. longirostris*. In the desert region between Morocco and Arabia Petræa there is a resident and well-marked tawny species, *O. bilopha*. Our bird occurs in Greenland, and the eastern portions of Arctic America, but, according to American trinomialists, no fewer than eleven sub-species are distributed over the remainder of the Western Continent; while *O. peregrina* inhabits the high lands of Colombia.

The nest, slightly made of grass and plant-stalks, with willow-down and reindeer-hair for a lining, is placed in some hollow of the ground, or among stones on a hillside. The eggs, 4–5 in number, are greenish-white, minutely freckled and often boldly zoned with olive-brown, and occasionally scrolled with black hair-lines: measurements ·9 by ·63 in. Breeding often begins in Norway and Lapland by the middle of May, and two broods are produced during the season. In autumn small flocks are formed, which rove about in search of food, principally seeds, though in summer beetles and other insects are eaten; the Shore-Lark is also partial to the small molluscs and crustaceans found on the sea-shore. It is a tame and confiding species, frequently entering the streets of towns and villages in the north of Europe, and up to the end of June it may be heard uttering its pleasant and rather mellow song from some post, rail or barn-top, or while hovering in the air.

The adult male has the lores and cheeks black; throat, forehead, and the eye-stripe enclosing the ear-coverts and joining the throat, yellowish-white; across the front of the crown a black band, terminating in an erectile tuft of black feathers on each side of the head; nape and mantle pinkish-brown; wing-coverts tipped with white, quills brown; middle tail-feathers warm brown, the rest nearly black, with whitish margins to the outer pair; upper breast broadly banded with black; under parts dull white, with brown streaks on the flanks; bill greyish-black; legs black. Length 7 in.; wing 4·3 in. The female is smaller (wing barely 4 in.), with less black on the head; the erectile tufts are wanting, and her general colour is duller. The young male resembles the female; the nestling is dark brown mottled with buff, but the black ear-patches are conspicuous. In the adults after the moult the feathers on the head are much tinged with yellow.

THE SWIFT.

Cýpselus Ápus (Linnæus).

The Swifts, with which we enter upon the Order Picariæ, were formerly placed among the Passeres, and close to the Swallows; but it is now generally admitted that in spite of a similarity in habits and appearance, the Swifts have as little structural affinity with the latter as with any other Passerine family. They have no true song-muscles, and their note is a harsh scream. Their powerful wings are very long; while their four toes are directed forward, and, though well adapted for clinging, are so small that walking is difficult. Contrary, however, to the popular belief, birds sometimes succeed in raising themselves from fairly level ground.

The Swift, often called "Screecher" and "Deviling," is an abundant migrant to the British Islands. It usually makes its appearance in the south towards the end of April; but Prof. Newton and his brother, the late Sir Edward Newton, observed a Swift near Lowestoft as early as March 26th 1897. The majority have taken their departure by the end of August, but laggards have been recorded up to October, November and even December 1st.

To the extreme north of Scotland this species is somewhat irregular in its visits, and it is only seen occasionally in the Orkneys and Shetlands; while on the west side it is not numerous in the Inner Hebrides and is rare in Skye, as well as in the Outer group. To Ireland it is a regular visitor, and, though uncommon in some parts of the west, it is plentiful in Mayo and Sligo.

To the Færoes the Swift is an occasional visitor, but it is found in Scandinavia up to 70° N. lat., and in Russia as far as Archangel. In Asia it breeds to the north of the Western Himalayas; while on migration it visits the Punjab and has occurred in the Andaman Islands. A pale race inhabits Mongolia and Northern China; between India and Tunisia the white-rumped *C. affinis* seems to be resident; in portions of Northern Africa our bird is either associated with or represented by the Pallid Swift, which visits Southern Spain and the Canaries; and the latter islands are also inhabited by the smaller and darker *C. unicolor*. Throughout Europe our Swift is abundant in summer, often arriving in the sunny south early in March, though not until June in Lapland; while on migration it visits Madagascar and the extreme south of Africa, and is said to breed in Natal.

Holes under the eaves of cottages and other buildings, church towers, crevices in sea-cliffs, quarries, chalk-pits, as well as hollow trees, are the sites selected by the Swift for breeding; and to these it returns year after year. A few bits of straw and grass, with some feathers, collected on the wing and glued together by the viscous secretion of the bird, form its usual nest, but it sometimes robs of their dwellings Martins, House-Sparrows, and even Starlings. The eggs, laid late in May or early in June, are 2 in number, and when more are found in the same nest, they may be the produce of two females; they are oval, rough in texture, and dead-white: measurements 1 in. by ·65 in. Incubation lasts eighteen days, and as a rule only one brood is produced in the season; backward young being abandoned by their parents when the time arrives for emigration. Insects taken on the wing form the food, and the indigestible portions are rejected in the shape of pellets. The wild, screeching note is sometimes startling when uttered by birds sweeping by at lightning speed, and often in the worst of weather, for the Swift seems to revel in the storm.

The plumage of the adults is a bronzed blackish-brown, with a small greyish patch under the chin; bill, toes and claws blackish. Length (to the tip of the tail) 6·75 in.; wing 6·8 in. The young have more white on the throat, and paler margins to the feathers.

THE ALPINE SWIFT.

CYPSELUS MÉLBA (Linnæus).

This large Swift was first noticed as one of our occasional visitors about midsummer 1829, when one was shot off the coast of Ireland; and since that time three or four more have been obtained, at long intervals, in that island. Upwards of a score of instances are on record from various parts of England: mostly from the southern half, though one of them occurred as far north as Alnmouth in Northumberland. No captures have as yet been made in Scotland. With the exception of a bird taken near Dublin in March 1833, the occurrences authenticated have been between June and October; and for several reasons, coupled with the fact that I once captured an example on board ship in the Bay of Biscay early in August, I incline to the belief that the birds which come to us are from the Pyrenees or the Cantabrian range.

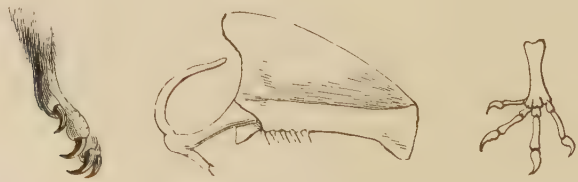
The Alpine Swift is a very rare visitor to Heligoland, Germany, and the north of France, although it breeds no further off than the cliffs at Nolay on the western frontier of Burgundy. It also nests sparsely in the Vosges and the Jura; while in some parts of Savoy, and more plentifully in Switzerland, it annually resorts to high crags and towers, arriving at the end of April and leaving in September or October. All the high mountains of Central and Southern Europe are frequented by it during the summer; as well as the ranges of North Africa, Asia Minor, Palestine, Persia, Turkestan, and India as far east as Assam. In the cold season, and during a considerable

portion of the year, it is found in Ceylon; also in suitable situations down to the extreme south of Africa, where it is supposed, though not yet proved, to breed.

A new spire now (1897) replaces the old tower of the cathedral at Berne, where many ornithologists have studied the breeding-habits of the Alpine Swift; but several places in that city still afford suitable resorts, while there are many such in Friburg, the cliffs of Mont Salève, and other localities. "The nests are circular, substantial, saucer-like structures, built up of sticky mud, and further welded together by the birds' saliva, bound with straw, bents of grass, pieces of paper and morsels of cloth" (J. H. Gurney, Tr. Norw. Soc. vi., p. 258). I believe that the eggs are normally 2 in number, but as 3 and 4 are sometimes found, perhaps two birds lay in the same nest; the colour is dead-white: measurements 1·2 in. by ·77 in. May 20th is the earliest date on which I have found eggs. The Rev. H. A. Macpherson noticed some green grass in many of the nests. Only one brood is reared in the season; the male and female taking turns in the duties of incubation. The food consists of insects: among these the pernicious *Tabanus bovinus*. The note is louder than that of the Common Swift, and the flight is more powerful; while the large size, browner colour and white belly are distinctive characters.

Excepting a blackish patch in front of the eye, the upper parts, sides of the neck, gorget and under tail-coverts are of a nearly uniform mouse-brown, with a metallic lustre on the wings and tail; throat and belly white; bill black; feet brown; length (from the tip of the bill to the end of the tail) 8 in.; wing 8·45 in. The sexes are alike in plumage. In the young the feathers are slightly margined with greyish-white.

The vignette below represents the breastbone and foot of the Common Swift.



THE NEEDLE-TAILED SWIFT.

ACANTHÝLLIS CAUDACÚTA (Latham).

An example of this Asiatic species was shot at Great Horkesley, near Colchester, on July 8th 1846, having frequented that neighbourhood for two days, and was examined in the flesh by Doubleday and Yarrell. The latter did not include it in his 3rd Edition of 'British Birds,' being probably under the impression—then generally prevalent—that the species was a native of Australia, to which it is now known to be merely a winter-visitor. On July 26th or 27th 1879, another specimen was obtained near Ringwood, in Hampshire, having for a few days before been seen flying with a companion over the river Avon by Mr. Corbin, on whose behalf the specimen was exhibited by Prof. Newton at a meeting of the Zoological Society.

This fine Swift has not yet been noticed in any other part of Europe, and its western breeding-limits are probably in the mountains to the south of Krasnoiarsk, in the upper valley of the Yenesei, whence Seebohm received specimens. The late General Prjevalsky found it in summer up to 62° N. at Yakutsk on the Lena; while it is moderately abundant round Lake Baikal, and rather plentiful on

the Amur River, as well as about Lake Hanka, near Vladivostok, on the Sea of Japan. It is also met with in Mongolia, Manchuria, and the mountains of the Chinese Empire; while in the cold season it migrates as far as Eastern Australia and Tasmania. It is said to return to its breeding-quarters about the end of April or early in May; departing for the south in August and September; and Prjevalsky has described its bands as passing over-head in an almost incessant stream at the time of the autumn migration in Mongolia. In the Himalayas and Assam the representative species is *A. nudipes*.

Several pairs are stated by the above-mentioned Russian explorer to breed in close proximity, the nests being placed in cliffs, or in hollow trees; the eggs are probably white. The food consists of insects; the note is described as feeble; while all observers agree in eulogizing the unrivalled vigour of the bird's flight. Gould remarks that the keel of the breast in this species is more than ordinarily deep, and that the pectoral muscles are more developed than in any bird of the same weight with which he was acquainted.

The adult has the forehead dull white; crown, nape and sides of the head dusky black, with a greenish gloss; back dusky brown, paler in the middle; wing-coverts and secondaries bottle-green; inner secondaries chiefly white on the inner webs; primaries blackish; tail-feathers bottle-green, with projecting spinous shafts; throat, breast and under tail-coverts white; belly sooty-brown; lower flanks white, mixed with glossy blue-black; bill black; legs and feet dark brown, with one claw directed backwards: in which respect birds of this genus differ from the true Swifts. Length 8 in.; wing 8·1 in.

The vignette below represents the head and left foot of the Night-jar, the next species.

THE NIGHTJAR.

CAPRIMÚLGUS EUROPÆUS, Linnæus.

The Nightjar is the latest of our regular summer migrants to arrive, and is seldom noticed before the middle of May; while it usually leaves us in September, though it has been known to remain until November in the mild south-west of England. Uncultivated ground more or less covered with ferns, gorse or heather, and the cool shade of woodland glades, are its favourite haunts, and the species is consequently local; but it is distributed as far as the northern extremity of the mainland of Scotland, as well as in the western islands, except the Outer Hebrides, to which, as to the Orkneys and Shetlands, it is only an irregular visitor. In Ireland it is rather common in some of the southern and central counties, but rare in the north and west.

The Nightjar sometimes visits the Færoes, and in Scandinavia it has been found nesting up to about 63° N. lat.; but in Russia it has a less extensive range, while eastward it does not reach beyond Lake Baikal in Siberia. Throughout the summer it is found over the greater part of Europe, down to the elevated districts of Spain; but in the south of that country (though common on passage early in May, and obtained as late as December 11th), its place is chiefly

occupied by the Red-necked Nightjar, *C. ruficollis*. On migration from Africa our Nightjar crosses Malta, where large numbers are shot for the table in spring. It breeds on the high grounds of Asia Minor, Palestine, Persia, Turkestan, and Afghanistan—where its plumage shows a tendency to paleness; and it also nests on the mountains of North Africa, while in winter it is found in that Continent down to Natal, as well as in Arabia and North-western India.

From May 23rd onward the eggs, 2 in number, may be found on the bare ground or short moss, and often on dead gorse-needles in open patches among furze. They are oblong and equally rounded at each end; and creamy-white, marbled and veined with brownish-black and lilac-grey: measurements 1·2 by ·85 in. Fresh eggs have been found as late as August 12th. Incubation lasts eighteen days. The nestlings, at first covered with a thick greyish down, sometimes display a precocious activity approaching that of the young of Gallinaceous and other ground-breeding birds; but they are dependent upon their parents for food, and do not attempt to feed themselves in confinement. The Nightjar lives entirely upon insects, and these it may be seen to take upon the wing in the twilight or when the moon is shining, though it hawks for them on dark nights as well; it is not, however, averse to light, and is fond of basking where the rays of the sun fall. The wings are sometimes brought into contact and produce a loud clap; the male also utters a sharp whistle during flight, as well as a bubbling note, while the well-known, vibrating *churr* is emitted while the bird is stationary; the female's note is *chuck*. When reposing on a branch the bird sits lengthways, with the head level with or lower than the tail; the use of the pectinated claw has yet to be determined. From early times and in almost every European language the Nightjar has been stigmatized by some name equivalent to "Goat-sucker"; in England it is known by the equally unfortunate designation of "Night-hawk," as well as "Dor-Hawk," "Fern-owl" and "Churn-owl."

In the adult male the general plumage is ashy-grey, streaked, spotted and barred with dark brown and warm buff; on the throat are some white patches; near the centre of each of the three outer primaries are well-developed white spots; and the two lateral pairs of tail-feathers are broadly tipped with white. These pure white spots on the wings and tail are wanting in the female, and her tints are less rufous. Length 10·5 in.; wing 7·55 in. In the young the pectination of the claw of the middle toe is not pronounced, and the wing- and tail-spots in the male have a buffish tint. Albinisms are occasionally obtained.

THE RED-NECKED NIGHTJAR.

Caprimulgus ruficóllis, Temminck.

A freshly-killed example of this southern species was recognized in the flesh by that eminent ornithologist, the late John Hancock, in the shop of Mr. Pape, at Newcastle, on October 6th 1856. It was stated to have been shot the previous day at Killingworth, and is now in the Newcastle Museum.

Up to the present time the Red-necked Nightjar has not been noticed elsewhere in Northern Europe; but in Languedoc and Provence, in the south-east of France, it has been obtained on several occasions. Though not yet recorded from the mainland of Italy, one was taken at Spalato, Dalmatia, in March 1875, and Mr. C. A. Wright has mentioned two captures in Malta during May, in different years. In summer this species is common in the southern half of the Spanish Peninsula, where it frequents the cool chequered shade of the woods during the greater part of the day; it is also said to be a regular visitor to some of the Canary Islands; while eastward it is found throughout North Africa as far as Tunisia.

The eggs, 2 in number, are placed on the bare ground, and resemble those of our Common Nightjar; on average they are less boldly marked, and are also a trifle larger, as might be expected from the superior size of the bird. I am not aware of any distinctive points deserving mention as regards the food and habits.

In general pattern of coloration the Red-necked Nightjar resembles the preceding species, but its tint is paler, and is more rufous on the wings as well as the under parts; a conspicuous tawny collar encircles the head, and the throat exhibits large white patches; the white spots on the three outer primaries increase in size with the age of the bird, and are small and tinged with buff in the young. These patches are not confined to the male, as they are in our Nightjar, but are common to both sexes, and there is no perceptible difference in plumage; the two lateral pairs of tail-feathers are broadly tipped with white. Length 12 in.; wing 7·8 in.

It has not been considered necessary to give an illustration of this rare visitor, nor would a wood-cut do justice to its distinctive characters. Coloured illustrations are in Gould's 'Birds of Great Britain,' Mr. Dresser's 'Birds of Europe,' and the late Lord Lilford's 'Coloured Figures of the Birds of the British Islands.'

THE EGYPTIAN NIGHTJAR.

Caprimulgus ægýptius, Lichtenstein.

On June 23rd 1883 a gamekeeper in the employ of Mr. J. Whitaker, of Rainworth Lodge, near Mansfield in Nottinghamshire, shot a Nightjar, the light colour of which attracted his attention; and on his mentioning the fact to his master, who takes a special interest in albinisms and pale varieties, the bird, which had meanwhile undergone very rough treatment and then been thrown aside, was submitted to competent authorities. It proved to be an example of the Egyptian or Isabelline Nightjar (Zool. 1883, p. 374).

The occurrence of this south-eastern species in Europe is not unprecedented; Seebohm having discovered in Heligoland a specimen (now in the Gätke collection) which was shot on June 22nd 1875, and had been passed over as a pale variety of the Common Nightjar. Subsequently Professor Giglioli recognized in the Museum of the University of Malta, three examples obtained in 1876; while in Sicily a bird, which was probably an Egyptian Nightjar, was shot at Girgenti, and an undoubted specimen was obtained at Modica in 1879. The breeding-places of this species are the sandy parts of Trans-Caspia, Turkestan, Baluchistan, Egypt, Nubia and Tunisia; to which Dr. A. Kœnig has recently added the district of Biskra, in Eastern Algeria. The winter-quarters of this species appear to be still further south.

An egg, taken near Biskra on April 14th 1892, is figured by Dr. Kœnig in the Journal für Ornithologie for 1896, pl. vi. fig. 2. It measures 1·22 by ·86 in. and is greyish-white, with faint lavender mottlings. Von Heuglin says that 2 eggs form the complement, and are placed in a depression in the sand or under a low shrub. The old bird sits very closely and rises unwillingly, often running with puffed-out throat from one bush to another, uttering meanwhile a curious note. Captain Shelley found flocks in Egypt in spring and autumn, and it would appear that the sexes separate on migration.

The plumage of the adult is sandy-grey finely marked with black, the pattern being generally the same as in the Common Nightjar; there are, however, no white spots on the upper surface of the tail or wings, but the inside webs of the primaries are pure white. Length 10·5 in.; wing 8·1 in.

For the reasons mentioned on the preceding page, I have not considered it expedient to give a wood-cut of this species; it is well figured in Mr. Dresser's 'Birds of Europe,' vol. iv. pl. 262.

THE WRYNECK.

Iÿnx torquílla, Linnæus.

This bird resembles the Nightjars in its delicately pencilled plumage, though allied to the Woodpeckers in its structure. It is a regular spring-visitor to England, sometimes arriving in the south by the middle of March, though usually about the first half of April; whence the names "Cuckoo's-mate" or "Cuckoo's-leader," which have their equivalent in several European languages. In the south-eastern counties it is more numerous than in the west, while it is rare in Wales; Lancashire has seldom been visited by it of late years, and to Cumberland it is now merely a straggler; in Yorkshire and Durham it is very local, and it becomes rare in Northumberland. Statements that it has nested in Scotland require confirmation, but at intervals it has been known to occur in Caithness, the Orkneys, and the Shetlands; while it visits the entire east coast on the spring and autumn migrations. In Ireland it has been taken in co. Waterford in October 1877; on Aran Island, off Galway Bay, on October 6th 1886; in co. Wicklow, May 1895; at Rockabill in September 1896, and probably in Donegal in October 1878. By the latter part of September it has usually left England for the south, but there are assertions that the bird has been seen and heard in winter.

The Wryneck has been known to visit the Færoes. In Scandinavia and Finland it has been found up to about 64° N. lat., and in Russia it visits Archangel; but across Siberia to Kamchatka its range does not extend so far north. In summer it inhabits the Japanese islands, as well as suitable localities on the mainland of Asia down to the Himalayas and the Altai Mountains; while in the cold season it visits India and Burma. In Africa its winter-quarters extend to Kordofan on the east and Senegambia on the west, but it appears probable that a limited number go no further than Algeria. Some may even remain in the south of Europe, where, however, the bird is chiefly known on passage; in summer it is generally distributed over the rest of the Continent.

About the middle of May the Wryneck makes use of any convenient hole in a tree, at no great height, or occasionally in an earth-cutting or sandbank. The eggs are usually from 7–10 in number, but the bird has been induced to go on laying until, as recorded by Mr. Frank Norgate, the maximum of 42 was reached; they are pure white, rather larger, less glossy, and thinner in shell than those of the Lesser Spotted Woodpecker: measurements ·8 by ·6 in. When disturbed, the sitting bird makes a loud hissing, calculated to induce the belief that a snake is concealed in the hole—a practice which has led to the popular name of "Snake-bird"; it also erects the feathers of the head and twists its neck in a way which is equally characteristic of the above name; while, when taken in the hand, it will often feign death. Its loud note, which somewhat resembles that of a Kestrel, and may be syllabled as *qui*, *qui*, *qui*, or *pay*, *pay*, *pay*, is heard from the time of the bird's arrival until midsummer. The food consists almost entirely of insects, many of which are obtained on the trunks and branches of trees: chiefly of ants and their pupæ, sought on the ground, the bird shooting with marvellous velocity its long, retractile, vermiform tongue (covered with a glutinous secretion) into ant-hills. In autumn the Wryneck is said to eat elder-berries. In its habits it is skulking and unobtrusive; its flight is short and undulating.

The general colour of the upper parts is variegated grey and rufous-brown, streaked on the nape, back and scapulars, with brownish-black; quills dark brown, with buff bars on the outer webs; tail-feathers soft at the tips, greyish-brown with darker bars; throat warm buff, with narrow black bars; breast and flanks dull white, with small spots and bars. Length 7 in.; wing 3·4 in. The female is rather smaller and duller in plumage than the male; the young are more strongly marked with blackish-brown on the under parts.

THE GREEN WOODPECKER.

GÉCINUS VÍRIDIS (Linnæus).

This largest and best known of our British Woodpeckers occurs in most of the wooded districts of England as far north as Lancashire and Yorkshire; beyond which it becomes rare, being only occasionally found breeding in Durham, Northumberland, Westmoreland or Cumberland. Across the Solway it is said to have been killed in Kirkcudbrightshire, but other records from Scotland require confirmation; a bird is said to have been seen at Kirkwall, Orkney, in July 1885. In Ireland—where all the Woodpeckers are uncommon—this species has only twice been obtained up to 1898. Even in England it is often unaccountably local, and has decreased of late years without any assignable reason in some districts, while, on the other hand, it has become common in the extreme west of Cornwall, without reference to trees or woodlands (Rodd). In Wales it is abundant in Pembrokeshire, and fairly numerous further north.

In Norway the Green Woodpecker breeds up to about 63° N. lat.;

but in Sweden and in the islands of the Baltic it does not range so far north; in Russia, it is very rare about St. Petersburg and is uncommon in the forests of the central provinces, though it reaches the Urals. In Denmark it is scarce, and in Heligoland it has only once been taken; but southward it is generally distributed throughout most of Europe down to Turkey, as well as in the Caucasus, Asia Minor and North Persia; it is, however, very local in Greece, unknown in Sardinia and Corsica, and rare in Sicily, though common on the mainland of Italy. It is abundant in the French Pyrenees, but in the Iberian Peninsula its representative is the grey-cheeked *G. sharpii*, which links our bird to *G. vaillanti* of North Africa (with no red on the lower cheek-patch of the male), and, less closely, to *G. canus* of the Continent (the male of which has little red on the head, while the female has none).

Early in April an old abode is occasionally utilized, but usually a new circular hole is hewn in a trunk or branch of some tree whose wood is not necessarily decayed; the excavation running horizontally till the heart is reached, and then turning downwards for a short distance, when it is enlarged to form a suitable receptacle for the 5–7 pure glossy white eggs, slightly pyriform in shape: measurements 1·3 by ·88 in. The discarded chips of wood are rarely removed from below, and often serve to indicate the position of the nest. The note most frequently heard is the loud laughing *pleu*, *pleu*, *pleu*, popularly supposed to foretell rain, for which reason "Rainbird" is a common name in some parts, as well as "Yaffle" and "Woodwale." In search of timber-haunting beetles, spiders and other insects, this Woodpecker may be seen climbing obliquely up some trunk or branch with short jerking movements, assisted by the stiff-pointed feathers of the tail, until, on arriving at the top, it passes with dipping flight to some other tree; it also feeds to a great extent on ants in summer, and on other ground-insects during the great part of the year, while it has been said to eat nuts and acorns.

The upper plumage of the male is chiefly olive-green, shading into yellow on the rump; under parts pale greyish-green; crown and nape crimson; lores black; on each lower cheek an elongated patch of crimson edged with black. Length 12·5 in.; wing 6·4 in. The female has less crimson on the head, and the cheek-patches are black. In the young the under parts are barred. The nestling is mottled on the back, and profusely spotted with arrow-headed markings on the under parts.

GREAT SPOTTED WOODPECKER.

DÉNDROCOPUS MAJOR (Linnæus).

The Great Spotted Woodpecker is often supposed to be rarer than it really is, in consequence of its retiring nature and its habit of confining itself to the higher branches of trees; but nowhere in the British Islands can it be considered abundant. It is, however, fairly distributed throughout the wooded portions of England, and though naturally rare in the treeless parts of Cornwall, and scarce in Wales (where it is increasing in Brecon), it is not infrequent in many of the southern and midland counties. North of Durham it becomes rare as a breeding species; and in Scotland, where it formerly nested up to the Moray basin, it has only recently been found breeding in the south-east. Unlike our other Woodpeckers, this species is an irregular migrant from the Continent, and occurs in autumn from the Shetlands and Orkneys southward, especially along the east coast: sometimes in considerable numbers. In Ireland it is not known to breed, but examples have been obtained at long intervals; several having been taken in the autumn of 1886, one in February 1887, many in 1889, and one in 1890.

This Woodpecker has wandered to the Færoes, and is the only

member of the family which regularly visits Heligoland in autumn; doubtless on its migration from Scandinavia, where it breeds up to 70° N. lat. In Russia it is common up to about 64° N. lat.; and, allowing for an increase in the extent or purity of white in its plumage, this species can be traced to the Sea of Japan. Between the Persian Gulf and the Mediterranean other forms are observed, which show in addition a tendency to develop a crimson band on the breast—a coloration which reaches its highest point in *D. numidicus* of North Africa; though Continental and even British examples sometimes exhibit distinct signs of a red pectoral band. In the Canaries our northern form occurs.

The nesting-hole, smaller than that made by the preceding species, is generally hacked out in a similar manner; but, according to good authorities, a natural cavity in a dead branch is sometimes prolonged and utilized, and several holes are often cut out before the bird is satisfied. The 6–7 eggs, laid on the bare wood about the middle of May, are creamy-white in colour, and in shape rather less pyriform than those of the Green Woodpecker: measurements ·98 by ·75 in. Both sexes take part in incubation, which lasts about a fortnight. It has been noticed in captivity that this bird descends by a series of jerks with the tail downwards, but in the wild state the mode of progression is usually diagonally or spirally upwards. The food consists of insects and their larvæ, but in autumn the berries of the mountain-ash, nuts, acorns &c. are eaten. The note is a sharp *keek* or *gick*, and sometimes a low, reiterated *tra*, but the male often makes a loud vibrating noise by rapidly hammering with his bill on the bark of a tree.

The male has the upper parts chiefly black; forehead dull white; cheeks and ear-coverts white; nape crimson; scapulars white; wing-feathers barred with white on the outer webs; under parts dull white; vent crimson. Length 9·4 in.; wing 5·5 in. The female is slightly smaller and has no red on the head. The young of both sexes have the *crown* of the head *red*. In ignorance of this fact, a bird obtained in the Shetlands during the migration of 1861 was supposed by Saxby to be the Middle Spotted Woodpecker, *D. medius*, and was afterwards figured by Gould as the White-backed Woodpecker, *D. leuconotus*; but it has been pronounced by Prof. Newton and other authorities to be a slightly albescent *D. major*!

An example of the American Hairy Woodpecker, *D. villosus*, is said to have been obtained in Yorkshire more than a century ago, and another near Whitby in 1849.

THE LESSER SPOTTED WOODPECKER.

DÉNDROCOPUS MINOR (Linnæus).

Owing to its small size and its partiality for tall trees, such as elms and poplars, this little "Barred" Woodpecker frequently escapes observation; but, though less widely distributed than the preceding species, it is the more numerous in many parts of the southern half of England, being, in fact, rather common near London and along the valley of the Thames, as well as in the midlands, especially Northamptonshire. In Yorkshire it becomes scarce and very local, as it is in Wales; while in Lancashire and more northern counties it is extremely rare. Mr. Service informs me that three examples have been obtained in the Solway district, at long intervals, since 1860. In Ireland only six or seven occurrences are on record; and none of them are recent.

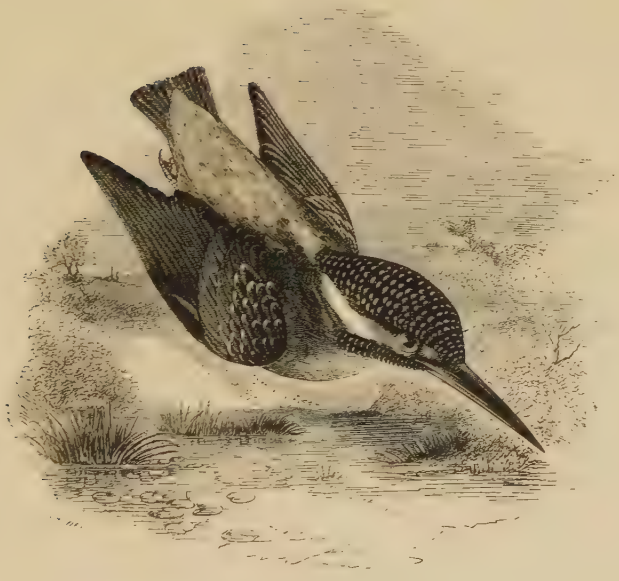
In Scandinavia the Lesser Spotted Woodpecker breeds as far north as lat. 70°, while in Russia it is found up to Archangel and to lat. 67° in the valleys of the Petchora and the Ob; though eastward, to the Pacific, its northerly range is rather less extensive. Forms which vary slightly from the type are found in Kamchatka, Japan, and Northern China, but their southern limits in Asia are as yet undefined; while in Asia Minor another occurs, and yet another in the Caucasus. Our bird is generally distributed throughout the greater part of Europe; but, though common in Southern Russia

and Turkey, yet in other parts of the south it is either comparatively rare or has been overlooked. There also it is to a considerable extent a migrant, but in the Azores, strange to say, it is a resident.

The nest-hole is often made in the highest branches of poplars and other tall trees, but sometimes at very moderate elevations in oaks, chestnut- and fruit-trees, hawthorns, or pollard willows. The 6–7 eggs, laid about the middle of May, resemble those of the Wryneck; but their texture is more ivory-like and their colour more creamy-white, while they are slightly smaller: measurements ·75 by ·57 in. The food consists almost entirely of timber-haunting insects. The usual note is an often repeated *keek*, but the male further produces a vibrating noise like that made by the preceding species. In flight and general habits this bird hardly differs from its congener, except perhaps in its extreme restlessness.

The adult male has the forehead buff; crown of the head pale crimson; nape and lower cheek-stripe black; cheeks white; upper parts black, broadly barred with white; central tail-feathers black, the rest black barred with white; under parts buffish-white, with black streaks on the flanks. Length 6 in.; wing 3·7 in. In the female the crown is whitish instead of crimson, and the under parts are more striated. The young male has a crimson crown, as in the adult; but in the young female only the fore part of the head is red, while the black and white chequerings of the back are less pure.

The Rev. O. Pickard-Cambridge has a specimen of the North American Downy Woodpecker, *D. pubescens*, supposed to be a bird which he shot at Bloxworth in Dorset, in December 1836; and an example of this species has also been killed near Elbeuf, in Normandy:—American 'Spotted Woodpeckers' are, however, known to have been brought to Europe and turned loose more than a century ago (*Cf.* Prof. Newton in 'Yarrell,' 4th Ed., ii. p. 485). An American Golden-winged Woodpecker, *Colaptes auratus*, is said to have been shot at Amesbury, Wilts, in 1836. As regards the Black Woodpecker, *Picus martius*, Mr. J. H. Gurney and Prof. Newton have, I think, conclusively shown that in the British Islands there is not one of its numerous recorded occurrences sufficiently authenticated; while a bird undoubtedly shot in Yorkshire on September 8th 1897, may be suspected of being one of the individuals liberated by the late Lord Lilford. Donovan's statement in 1809, that an example of the Three-toed Woodpecker, *Picoïdes tridactylus*, had "lately" been shot in the North of Scotland is unsubstantiated.



THE KINGFISHER.

Alcédo íspida, Linnæus.

The Kingfisher is resident and generally distributed throughout England and Wales; also in the greater part of Scotland, though of irregular occurrence in Sutherland and the west as far as Skye, and very rare in the Outer Hebrides. In Ireland, though breeding in almost every county, it is scarce and local (Ussher). In few places can it be considered an abundant species; mainly owing to the fact that it is shot on account of its bright plumage, but partly for its feathers, used in making artificial flies. The banks of lakes, ponds, and streams of all sizes (provided the current be not too rapid) or even the sea-shore, especially a rocky coast, are its usual haunts; and there it may frequently be seen darting in a straight line over the water, or sitting patiently on some convenient perch, awaiting an opportunity for the sudden plunge by which it secures its prey.

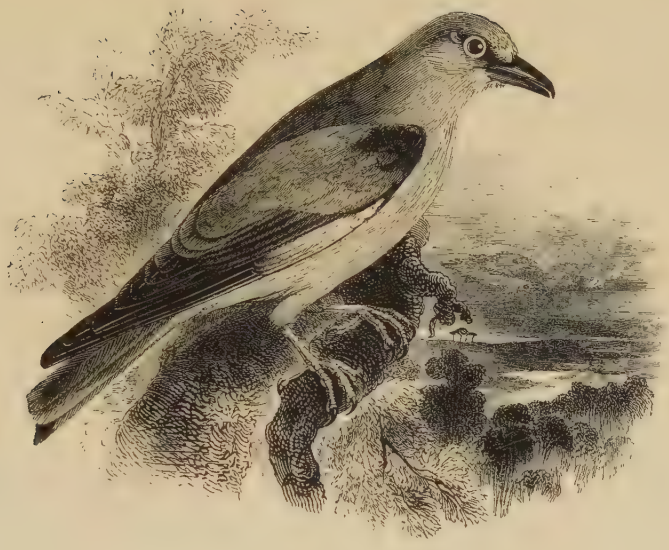
Even in the southern portion of Scandinavia the Kingfisher is of accidental occurrence, though known to have nested there on one occasion; to Denmark it is merely a visitor; while in Russia it is rarely found as far north as St. Petersburg. In Northern Germany

—where, from its habit of congregating on the ice round any open water, it is known by the name of 'Eisvogel'—it is uncommon; but southward it is found in suitable localities throughout Europe down to the Mediterranean. It breeds near Gibraltar, and is said to do so in Morocco and Algeria; while it visits Egypt in winter, and occurs in the Canaries and Madeira. Variations from the type are noticed between Asia Minor and South-western Siberia, while those from further south, as far as the Malay Archipelago, have been called *A. bengalensis*; but the differences are very trifling.

For a nesting-place a hole in a bank is either bored or selected; generally near water, but sometimes in a dry sand-pit, and occasionally in some crevice in a wall. It usually slopes upward from the entrance, and at the end, upon the bare earth or upon a layer of small fish bones, the roundish glossy-white eggs, 6–8 but sometimes 10 in number, are deposited: measurements ·9 by ·75 in. The young are known to have been out of the nest by March 11th, and they have been found inside as late as July 24th, so that two broods are produced in some seasons. The food consists of small crustaceans, insects (such as dragon-flies and water-beetles), minnows, sticklebacks, and the small fry of other fishes; the quantity consumed being extraordinary. In autumn the young are driven by the parents from the nesting-place and become partially migratory. The note is a shrill *tit, tit, tit*, somewhat like that of the Common Sandpiper. The legends and superstitions relating to this bird are too numerous for mention here.

The adult male has the lower cheek-stripe, head and wings dark greenish-blue, slightly mottled; lores and ear-coverts chestnut; back cobalt-blue; tail dark blue; throat white; under parts chestnut; bill black, orange at the base; feet reddish-brown. Length 7·5; wing 3 in. The female is slightly greener and duller; the young bird further differs in having a wholly black bill.

Two examples of the North-American Belted Kingfisher, *Ceryle alcyon*, are, respectively, in the Museum of Science and Art, and in Trinity College, Dublin. One of these is said to have been shot in co. Meath on October 26th 1845, and the other in co. Wicklow the following November. This species has not been obtained in Greenland, Iceland, or on the Continent of Europe; and it seems inexpedient to admit to the British list an American land-bird which—even assuming the accuracy of the records—had probably escaped from confinement.



THE ROLLER.

Corácias gárrulus, Linnæus.

This bright-plumaged bird was first recorded as a visitor to our islands by Sir Thomas Browne, who described a specimen obtained in Norfolk in May 1644. Since then, upwards of a hundred examples have been noticed, chiefly in the southern and eastern counties of England and Scotland; some, however, have visited Caithness and the Orkneys, while in the west one has even reached St. Kilda. In Ireland there have been seven or eight occurrences, at long intervals. The majority of appearances in the British Islands have been in the autumn, but a fair proportion during the spring migration.

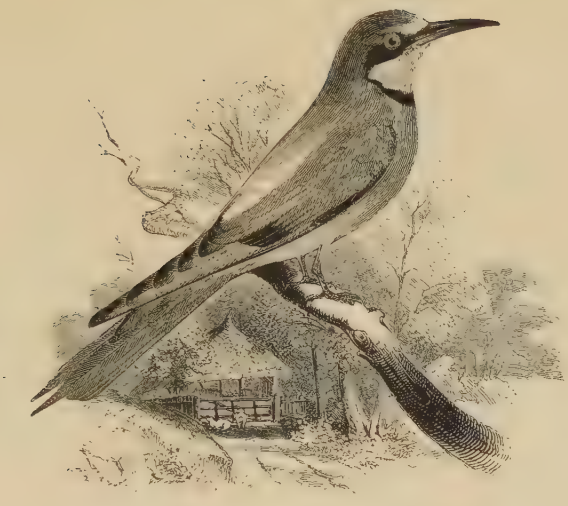
To the Færoes and the north of Norway the Roller is only a straggler, and it is scarce in any part of the latter country; but in Sweden it breeds annually up to about 61° N. lat., and in Russia, sparingly, as far north as St. Petersburg. In Northern Germany it is not uncommon in summer, though rare in Denmark, Holland, Belgium and Northern France; it is tolerably abundant in Central Europe; while in Spain and other countries bordering the Mediterranean it is very numerous, arriving in the Peninsula from the middle of March onwards, and leaving by November at the latest. It is plentiful in Turkey, Southern Russia, Asia Minor,

Palestine, Persia, and temperate Asia as far to the north-east as Omsk in Siberia; while southward, it is found in Kashmir and North-western India, where it meets with the closely allied *C. indicus*, the breast of which is vinous-purple instead of blue. In the north of Africa it is common in summer, but even there it does not pass the winter; nor does it breed in Egypt, though it traverses that country on its way to and from South Africa. During the cold season it inhabits the lower half of that continent down to Cape Colony and Natal.

In wooded districts the nesting-place selected is some hollow in a tree, but quite as often it is in the wall of a ruined fortress or in a high bank; in these a bedding of roots, grass, feathers and hair is accumulated, but when in trees, the bare wood or a few chips suffice. The 5–6 eggs, often globular, but sometimes elongated, are glossy white: measurements 1·4 by 1·1 in. Incubation lasts nearly three weeks, commencing early or late in May, according to the country. During the breeding-season the male indulges in some extraordinary tumbling antics, turning somersaults in the air, and uttering a harsh cry which the Germans syllable as *racker-racker* and the Spaniards as *carlanco-carlanco*; but at other times the bird is merely restless, flying from branch to branch with flapping, uncertain flight; while, like the Bee-eater, it may frequently be seen sitting on telegraph-wires. The food consists of beetles and other insects captured on the ground. On migration the Roller is observed in large flocks.

The adult has the head and nape greenish-blue, mantle chestnut-brown; upper wing-coverts dark blue; greater wing-coverts and bases of primaries light blue, quills black; tail-feathers dark blue at the bases and in the middle, and pale blue on the lower portions; chin white; under parts light blue; bill dark horn-colour; legs and feet yellowish-brown. Length 12 in.; wing 7·7 in. The sexes are alike in plumage; the young bird is much more dull and less pronounced in colour.

The late Dr. Bree stated that a male of the Abyssinian Roller was killed near Glasgow about 1857, and a female later, some forty miles off; the former was preserved by Mr. Small of Edinburgh, and is said to be in the Paisley Museum. In October 1883 a bird shot near Louth, Lincolnshire, was identified at a taxidermist's by Mr. Cordeaux as our *C. garrulus*, but in 1890 a specimen, said to be the very same bird, proved on examination to be the Indian Roller, *C. indicus* (Ibis 1891, p. 147).



THE BEE-EATER.

MÉROPS APIÁSTER, Linnæus.

The first British-killed Bee-eater on record was obtained in Norfolk in June 1793, and since that time over thirty examples have been obtained (while many others have been noticed) south of Derbyshire in England and Pembrokeshire in Wales: chiefly on the spring migration. Further north its visits have been rarer. Mr. W. Eagle Clarke mentions a bird picked up exhausted near Filey in Yorkshire on June 9th 1880; while in Scotland, one was captured in October 1832 near the Mull of Galloway, two or three are said to have been taken in the north-east, and one of a couple was shot in Caithness on May 12th 1897. In Ireland, to the south of co. Dublin, this species has occurred on seven or eight occasions, even in small flocks; six birds having been found resting in a snipe-bog on November 2nd 1892.

The Bee-eater has wandered as far north as Muonioniska (within the Arctic circle), but its visits to Sweden, Denmark, and Northern Germany, are few and irregular, and on Heligoland it has only once been obtained. It is said to have bred in Central and Southern Germany, as well as near Abbeville in the north of France, while it nests not infrequently in Languedoc and Provence; but north of the Alps and Carpathians, and of about lat. 55° in Russia, it only does so exceptionally. In Southern Russia, Turkey, Greece,

along the valley of the Danube, and in Southern Italy, the Bee-eater is abundant; and in the Spanish Peninsula it swarms from the beginning of April until the latter part of August. It visits the Canaries and Madeira, and is common throughout the basin of the Mediterranean and in North Africa, while in winter it is found as far south as Cape Colony. In Egypt it is abundant on migration, though few remain to breed, the representative species being the Blue-cheeked *M. persicus*. Eastward, it reaches the Altai Mountains in summer, and North-western India in winter.

The Bee-eater generally breeds in colonies, like the Sand-Martin, and banks by the side of rivers or dried-up watercourses may be seen honeycombed with its excavations, commenced soon after arrival; the bill of the bird being sometimes worn down by the operation. In the great plains below Seville holes are often bored diagonally or even vertically in the ground; and as the shafts vary from three or four to eight or nine feet in depth, the eggs, placed in a smaller chamber at the end, are not reached without labour. These, generally 5–6 in number, are laid upon the bare earth, though afterwards surrounded by castings and the wing-cases &c. of coleopterous insects; they are pure glossy white, nearly globular in shape: measurements 1 in. by ·9 in. Though sometimes found by the end of April, the middle of May is the usual time, and only one brood appears to be reared in the season. Sacksfull of birds are taken in Spain by spreading a net over the face of an occupied bank and pouring water into a parallel trench cut at some distance back; for the Bee-eater is hated by the peasants, owing to the ravages inflicted upon their numerous hives, though it also destroys large numbers of wasps, locusts, grasshoppers, beetles and other insects. The flight is light and undulating; the note is a sharp *quilp*.

The adult male has the lores and ear-coverts black; forehead white below, pale green above; head, neck, upper back and a broad bar on the secondaries, chestnut-brown; remaining quills chiefly bluish-green; lower back tawny-yellow; tail green, the two elongated central feathers tipped with black; throat bright yellow, with a black band; under parts greenish-blue; bill black; feet reddish-brown. Length 11·25 in.; wing 6 in. The female is greener on the back, duller in colour, and has the central tail-feathers shorter. In the young these feathers scarcely project; the upper parts are greenish-brown; and there is no black gorget.

An identified adult Blue-tailed Bee-eater, *M. philippinus*, is said to have been shot near Seaton Carew, Northumberland, in August 1862.

THE HOOPOE.

Upúpa épops, Linnæus.

The Hoopoe has been noticed for more than two centuries as a visitor to Great Britain, and in spring it arrives so regularly on our southern and eastern coasts that, if unmolested, it would soon become one of our regular breeding species. The appearance of this tame and conspicuous bird is, however, the signal for its persecution unto death, and I am afraid to say how many have been slain in certain localities in Sussex and Kent where they alight after crossing the Channel. In spite of their inhospitable reception a few pairs manage to escape, and some have nested from time to time in Devon, Dorset, Wilts, Hants, Surrey, Sussex, Kent, and probably other counties. In autumn many individuals are observed in our eastern counties, especially on the coast after gales; some even in winter: for instance, a bird frequented Scampston in Yorkshire for a week in the early part of January 1896; while several were noticed in the exceptionally mild January of 1898. In the west of England and in South Wales the Hoopoe is not rare, but northward it is seldom seen; though it has occurred irregularly in Scotland as far as Sutherland and Caithness, as well as in the Orkneys, Shetlands, and Outer Hebrides. To Ireland it is an almost annual visitor in small numbers, principally to the southern portion.

Accidentally the Hoopoe has been taken in the Færoes, Spitsber-

gen, and the north of Norway and Russia; while in the south of Sweden and in Denmark it breeds sparingly, though in the latter its numbers have diminished owing to the eradication of the old hollow trees in the forests. Southward it is generally distributed throughout Europe, wherever there are swampy woods and timber-fringed meadows suited to its habits; while in the countries bordering the Mediterranean and Black Seas it is abundant and almost ubiquitous, being especially numerous at the periods of migration. It is found in the Azores and Madeira, while common (and partially resident) in the Canaries, Northern Africa, Egypt and Nubia; its most southern winter-quarters being, as far as is known, between Abyssinia and Senegambia. It is widely distributed through temperate Asia up to Mongolia, and has occurred in Japan.

A hole in the decayed wood of some tree—frequently a willow or ash—is usually selected, and the slight materials of which the nest is composed are generally surrounded or cemented by ordure of some kind, which causes an intolerable stench, subsequently increased by the droppings of the female and young. Sometimes a crevice in a wall or rock is made use of; in China holes in exposed coffins are occupied; and Pallas found a nest in the chest of a rotting corpse loosely covered with stones. The 4–7 eggs are pale greenish-blue when first laid, but later they become greenish-olive: measurements 1 in. by ·7 in. The food consists of worms, insects and their larvæ—especially those found in dung—and flies, which are taken on the wing. The flight is undulating. The movements of the Hoopoe are particularly graceful at the time of courtship, when the male struts about with crest erect, uttering a note resembling a soft *bu-bu* (whence the Spanish term "abubilla") or *hoop-hoop*, to which, and not to the crest, it owes its English and French names; when excited, however, the bird emits a harsh croak (W. Eagle Clarke).

The adult has the plumage pale cinnamon on the head, shoulders and under parts; the long, erectile crest-feathers richer in tint and tipped with black; quills black, broadly barred with white, and striped with buff on the inner secondaries; lower back barred with black, white and buff; tail black, with a broad white bar across the centre and descending towards the tips on the outer pair of feathers; the long, slightly decurved bill is black, flesh-coloured at the base; feet dusky-brown. Length from base of bill 9·75 in.; bill 2·5 in.; wing 6 in. The female is rather smaller, duller in plumage, and has less crest. The young bird has a shorter bill, and the colours are not so rich.

THE CUCKOO.

Cúculus canórus, Linnæus.

The male Cuckoo, which precedes the female by a few days, seldom arrives even in the south of England before April 6th, when his presence is announced by the well-known *cuck-oo* note, often uttered at night as well as by day. In June, according to the familiar adage, he "changes his tune" and becomes hoarse, while by August most of the adults have taken their departure, though the young sometimes remain until October. In summer the bird is found throughout the United Kingdom, inclusive of the islets.

Though an accidental visitor to the Færoes, the Cuckoo ranges almost to the North Cape in Norway; nearly as far north in Russia; and across Northern Asia up to lat. 67°. Over Europe it is generally distributed, and a comparatively small number breed in

the countries bordering the Mediterranean, as well as in North Africa; but to the Canaries and Madeira the Cuckoo is only an irregular visitor. In Asia it breeds down to the Himalayas and perhaps further south; while in winter it reaches the Philippines, Celebes, Burma and Ceylon, as well as Natal in Africa. Allied species occur in both the above continents.

The female, which resorts to the same locality year after year, deposits her egg on the ground, and then conveys it in her bill to the nest of some bird destined to act as foster-parent. In this country the latter is commonly the Meadow-Pipit, Pied Wagtail, Hedge-Sparrow, Sedge-Warbler and Reed-Warbler; less frequently the Yellow- and Cirl-Bunting, with many others. In 'The Ibis,' 1896, p. 397, is an interesting list of these, compiled by Mr. Bidwell. The egg, which averages about ·85 by ·75 in., varies considerably, and, though usually of a greenish- or reddish-grey, with darker cloudings and spots, it sometimes, but not always, resembles the eggs of the foster-bird. For instance, Cuckoo's eggs placed in the nest of the Orphean Warbler, Garden Warbler, and Blackcap (*suprà*, p. 46), are chiefly distinguishable by their size; while eggs of a pale blue have been found, though these have not invariably been located in nests of the Hedge-Sparrow or the Redstart. From 5–8 are produced by the female in the season; and 12–13 days are required for incubation. There is a statement, made in Germany, that exceptionally the Cuckoo hatches its own eggs. When only thirty hours old, the intruder begins to eject the other nestlings by the aid of a cavity in its back, which fills up after the twelfth day; and when two Cuckoos are in the same nest the struggle for existence is sometimes severe. The food consists of insects and their larvæ, especially hairy caterpillars; the indigestible portions being thrown up in pellets. Up to June 20th the male calls on the wing, as well as when perched; the female utters a water-bubbling or whistling note. The superficial resemblance of the Cuckoo to a Hawk undoubtedly proves deceptive to other birds; while ignorant persons frequently assert that "Cuckoos turn to Hawks in winter."

The adults of both sexes are greyish-ash above and on the throat, with small white spots on the darker grey tail, and dusky bars on the white under parts; irides, legs and feet, yellow. Length 13 in.; wing 8·5 in. The female sometimes shows a slight rufous tinge on the breast. The young has the upper parts clove-brown; a white spot on the nape; irides brown. Birds of both sexes are sometimes found in spring of a rich chestnut-brown, like a female Kestrel, and this form has been distinguished as *C. rufus*.

THE GREAT SPOTTED CUCKOO.

Coccýstes glandárius (Linnæus).

An example of this southern species was captured alive in an emaciated condition on the island of Omey, off the coast of Connemara, probably in March 1842; it was subsequently secured for the Museum of Trinity College, Dublin, where I noticed that it was in immature plumage. Another, shot near Bellingham, Northumberland, on August 5th 1870, and now in the Newcastle Museum, is a young bird. On October 18th 1896, an immature male was obtained on the Denes near Yarmouth; while from the description sent to Mr. R. M. Barrington by Mr. T. King, lightkeeper at the Skellig Rock, co. Kerry, there can be little doubt that a bird in nearly adult plumage was observed there on April 30th 1897.

The Great Spotted Cuckoo has occurred exceptionally in Germany, more frequently in the south of France, and several times in spring in Italy as far north as Liguria; but it is rare in Malta, and unrecorded from Sardinia or Corsica. In Southern Spain I found that it arrived by March 2nd, and it is common throughout the summer in the Peninsula as far north as the vicinity of Madrid, wherever there are woods suited to the habits of the Magpie, in the nests of which

this Cuckoo deposits its eggs. It is not known to breed in any other part of Europe, though it visits Greece and Southern Russia; in Asia Minor, Palestine, and Northern Persia, however, it occurs in summer. It breeds throughout the wooded districts of Northern Africa, Egypt, Nubia, and Somali-land; while it wanders to the Canaries on its way to South Africa, where it winters.

In Spain, as already mentioned, it generally selects the Magpie as foster-parent, and I have found as many as four of its eggs with six of those of that bird, in the same nest, while occasionally a Raven's or Blue-winged Magpie's is made use of. Mr. E. Lort Phillips, however, found eight eggs of this parasitical bird in the same nest with four of *Corvus affinis*, in Somali-land; in Egypt the Hooded Crow's nest is chosen, and in Algeria the Moorish Magpie's. The Cuckoo takes the egg in her bill, and, after placing it in the nest, often ejects an egg of the foster-parent to make room for her own. The egg is pale green, streaked and spotted with russet and dull lilac, sometimes closely resembling that of the Magpie, but more elliptical as well as of a much firmer and smoother texture: measurements 1·2 by ·96 in. A female shot on April 6th had a well-formed egg in her oviduct, but early May is the usual time for laying. The food consists of insects. The note of the male is a harsh *kark-kark*; that of the female *burroo-burroo*. Col. Irby gives August 7th as the latest date for Spain.

The adults of both sexes have the crown grey with a long-pointed crest; upper parts greyish-brown with white tips to most of the feathers; tail-feathers, except the central ones, largely tipped with white: neck buffish-white; under parts dull white. Length 15·5 in.; wing 8 in. The young bird has a nearly black head and nape, buff neck and breast, and chestnut on the upper parts of the primaries.

An example of the American Yellow-billed Cuckoo, *Coccyzus americanus*, was shot in co. Cork in the autumn of 1825; another near Dublin in 1832; a third in Pembrokeshire, also in the autumn of 1832; a fourth near Aberystwith in October 1870; a fifth at Lundy Island in October 1874; while a sixth was picked up dead near Bridport on October 5th 1895. On the Continent, one was obtained in Belgium in October 1874, and another near Turin in 1883. Admitting that these occurred at the time of migration, I cannot believe that they crossed the Atlantic without human assistance. The same remark applies to the American Black-billed Cuckoo, *C. erythropthalmus*, a specimen of which was shot near Belfast about September 25th 1871; while in Italy one was killed near Lucca in 1858.

THE BARN-OWL.

STRIX FLÁMMEA, Linnæus.

This species, also known as the White, Screech- or Church-Owl, is generally distributed throughout England, Wales and Ireland; it might even be common, but for the persecution it suffers from gamekeepers, ignorant farmers, and dealers in plumes for ladies' hats, fire-screens &c. In Scotland it is not often found above the Lowlands, though it breeds in small numbers as far as Caithness and the Inner Hebrides, including Skye; in the Orkneys and Shetlands it is almost—if not quite—unknown. Immigrants, usually of the dark phase which prevails in Denmark, are noticed at intervals, as in 1859, and again in 1891.

The Barn-Owl was observed by the late Mr. D. Meinertzhagen at Muonioniska, in May 1897, but it is not known to nest beyond the south of Sweden, to which it has spread from Denmark, where the bird is tolerably common. To Heligoland it is a rare visitor. It is resident in Courland and not scarce in Poland; while in Central Russia it is found sparingly as far east as Tula and Orel, becoming abundant in the southern provinces of Podolia and Bessarabia. In Austro-Hungary and the greater part of Germany

it is fairly numerous, though somewhat local in its distribution; and throughout Western Europe it is a well-known species. It is found in the Azores, Madeira, the Canaries, and the Cape Verde Islands, Northern Africa as far east as Egypt, and in Palestine; in the north-eastern portion of the Mediterranean basin, however, it is seldom met with, though occurring in Mesopotamia and down to the head of the Persian Gulf. Over the above-mentioned area light as well as dark phases are found. Making allowance for climatic varieties which Dr. R. B. Sharpe and other authorities do not consider entitled to specific distinction, this Owl may be described as ranging over the African region inclusive of Madagascar, the Indian, Malayasian, Australian and Polynesian regions; as well as in America and its islands, from about 40° N. to 40° S. lat.

The Barn-Owl takes up its abode in church-towers and belfries, farm- and other buildings, hollow trees, dovecotes, and clefts in walls or cliffs. It makes no nest, though castings may be found round the eggs. These are sometimes laid in pairs; six, nearly fresh, having been found alongside of three nestlings, while two or three stages of the latter may occur simultaneously. Incubation occasionally begins towards the end of March, though usually in April or May, while it has been known to take place up to November and December. The eggs are dull white: measurements 1·6 by 1·2 in. There is no evidence that this species does any harm to eggs or pigeons in the dovecotes which it often inhabits, while it feeds chiefly on voles and field-mice, thereby entitling itself to protection on the part of the agriculturist; it also eats rats, bats, small birds, insects, and occasionally small surface-swimming fish. During the daytime the Barn-Owl generally remains concealed, though when disturbed I have seen it flitting in no uncertain manner in the brilliant sunshine of the south; but it seeks its food in the dusk of evening and at nights. Its cry is a loud weird shriek, and a snoring sound is emitted by young and old.

The typical adult has the upper parts orange-buff, minutely variegated with brown, grey and white; facial disk white with a brownish rim; under parts white. The dark form has the upper parts greyer, with darker spots and vermiculations; the facial disk tinged with orange, and its rim blackish: under parts warm orange-buff with clearly-defined blackish-grey spots. Bill white; operculum (or skin which covers the orifice of the ear) large; legs covered with white hair-like feathers. Length 13·5 in; wing 11·25. The female is slightly larger than the male. The young bird, at first covered with white down, hardly differs from the adult after its feathers have been assumed.

THE LONG-EARED OWL.

Asio ótus (Linnæus).

The Long-eared Owl is more abundant than is generally supposed, and it is found throughout the year in the wooded districts of Great Britain, especially in fir-plantations; its numbers being increased in autumn by migrations from the Continent. Where suitable cover is available it breeds in the Inner Hebrides, and has been obtained in North Uist; while it is now known to nest in the Orkneys, and occurs in the Shetlands on migration. In Ireland it is common and resident.

This Owl has wandered to the Færoes and Iceland, and is a well-known visitor to Heligoland. It breeds in Scandinavia and Russia as far as 63° N. lat., though rare and local at the northern extremity of its range; but south of 59° in the Ural Mountains it is more or less numerous down to the northern slopes of the Caucasus; while westward, it is generally distributed throughout the woodlands of Europe. In the south it is more abundant in winter than in summer, and the birds which breed in Spain and Italy generally resort to the wooded mountains. Mr. Godman obtained a

nestling in the Azores; while in the Canaries this species breeds in the palm-trees of the warm valleys as well as in the mountain forests; it is also found in North Africa from Morocco to Egypt. Eastward, it has been recorded from Arabia; it inhabits the wooded portions of Asia north of the Himalayas as far as China and the Sea of Japan, though it has not been found in Kamchatka; and in winter it visits Northern India. In North America it is represented by a subspecies, *A. wilsonianus* (Lesson), which has darker upper parts and more closely barred under parts.

The Long-eared Owl usually deposits its eggs in an old squirrel's drey, or some former nest of a Ring-Dove, Magpie, Crow, Rook, Heron, and, on the Continent, of a Buzzard, Kite &c.; a little lining of small thin sticks and rabbit's fur being often added. It lays very early in the season, and even in Northumberland clutches of eggs have been taken by February 22nd. These, 4–6 in number, are white, with a rather smooth but not glossy surface: measurements 1·6 by 1·3 in. Several pairs may be found in close proximity, and I once knew of eight broods in a fir-plantation which stretches along a commanding ridge in Surrey. On May 10th 1897, Mr. Ogilvie Grant and Capt. Savile Reid found a nest on the ground on an island in Loch Syre, Sutherland (Irby). This Owl is nocturnal or crepuscular in its habits, and during the daytime is seldom to be found in the open fields, except just after immigration. The pellets which I have examined show that it feeds principally upon field-mice, young rats, and birds up to the size of a Blackbird, though beetles and other insects are sometimes eaten. The old birds occasionally make a barking or 'quacking' noise, while on the wing as well as when perched; but as a rule this species is rather silent, and certainly does not 'hoot' like the Tawny Owl. The nestlings utter a loud mewing; they often leave the nest before they can fly, and climb up again, by the aid of their bills (R. J. Howard).

The adult male has the upper parts buff, mottled and vermiculated with brown and grey, and streaked with dark brown, especially on the long erectile ear-tufts; facial disk buff, with a greyish-black margin and outer rim, and dark markings round the eyes; under parts warm buff and grey, with broad blackish longitudinal streaks and minute transverse bars; bill blackish; operculum semicircular; legs covered to the toes with fawn-coloured feathers. Length 14 in.; wing 11·5 in. It has been stated that the female is more rufous in tint than the male. In the young the facial disk is yellower and the markings on the under parts are more defined.

THE SHORT-EARED OWL.

Asio accipitrínus (Pallas).

Unlike the preceding arboreal species, the Short-eared Owl is an inhabitant of the open country, especially upland moors, fens, heather or furze-covered hillsides, and more or less damp places; while in the latter part of the year it is often met with in turnip-fields and stubbles. Owing to the fact that large numbers arrive regularly from the Continent in autumn, and remain for the winter, this bird is frequently flushed by sportsmen, and is often called the Wood-cock-Owl, from the coincidence of the time of its appearance, and, perhaps, from its twisting flight; in some years it is much more plentiful than in others. Normally, it may be said that a few pairs nest in the south-west of England, as well as in Wales, while, in spite of drainage, some breed in East Anglia, and more freely on the moorlands northward. At long intervals, however, coincidently with irruptions of field-voles, Short-eared Owls flock to the infested spots, where they remain as long as food continues plentiful. This was notable during the plague of short-tailed voles in the south-west of Scotland in 1890–1891, when a wonderful increase was noticed, not only in the breeding birds, estimated at four hundred pairs, but also in the abnormal number of eggs laid. Under ordinary conditions the species nests in the Inner and Outer Hebrides, as well as in the Orkneys, and sometimes the Shetlands. In Ireland the Short-eared Owl has not yet been recorded as breeding, but it is as common there in winter as it is in the rest of the United Kingdom.

This migratory species is a wanderer to the Færoes, and its occurrence has been twice authenticated in Iceland; while it is the commonest of the Owls visiting Heligoland. From 70° N. lat. to the shores of the Mediterranean, Black and Caspian Seas, it is generally distributed throughout Europe, breeding in suitable localities down to the south of Russia, Italy, Sicily and Malta. In the Spanish Peninsula it has not yet been known to nest, though abundant there in winter, while in Morocco it meets with an African species, *Asio capensis* (which visits Spain); it occurs on the Salvage Islands (between Madeira and the Canaries), and is found far south in Africa. Its breeding-range extends over Northern Asia to Kamchatka; while in winter the species has been obtained in China down to Canton, and in Singapore, as well as in the Sandwich, Ladrones and Caroline groups. On the continent and islands of America it occurs from Greenland to the Straits of Magellan; nesting where suitable food and conditions exist, and following-up invasions of small rodents.

In the fens the nest is a mere hollow formed on the top of a clump of sedge or in the side of a mass of mown reeds; but on the moors the eggs are laid among heather; they are usually 6 in number—though up to 12 were frequent during the vole-plague—and are rather smooth in texture, and creamy-white in colour: measurements 1·6 by 1·25 in. They are generally laid early in May, though young may be found unable to fly in August. The food consists of rats, field-mice, voles, lemmings, and other rodents, birds from the size of a lark to that of a plover, and occasionally of bats, fish, reptiles, and large insects. This Owl pursues its prey in daylight, and has been known to pick up and carry off wounded birds.

In the adult the plumage of the upper parts is similar to that of the preceding species; but it is more blotched than streaked, the buff tint is more pronounced, the facial disk and the rim are browner, and the ear-tufts, though erectile, are short and invisible, except when the bird is excited; the under parts are streaked longitudinally with blackish-brown, but are not transversely barred or vermiculated; bill black; operculum semicircular. Length 14·5–15 in.; wing about 12 in.; the female being slightly larger than the male. The young bird is browner and darker, with bolder markings, and is very tawny on the under parts, while the iris is pale sulphur-yellow, instead of the rich yellow found in the adult. Pallid forms of this Owl are not uncommon, and specimens from different parts of the enormous area inhabited vary considerably in tint.

THE TAWNY OWL.

Sýrnium alúco (Linnæus).

The Tawny, Brown, or Wood-Owl familiarly called "the Hooter," is tolerably abundant in England and Wales, wherever there are woods or crags suited to its habits; it is in fact commoner in some places than the White or Barn-Owl, though decreasing in others. In the south of Scotland it is well-known, while it is quite the most numerous Owl in the Moray basin, and has extended its range on the mainland to Caithness and Sutherland; in the west, it occurs in Skye and several of the Inner Hebrides. In Ireland its presence has not yet been authenticated.

From the Færoes this exceptionally migratory species was recorded in January and again in March, 1871: on the latter occasion in company with some Long-Eared Owls. In Norway it is numerous up to the Trondhjemsfjord, above which it becomes rare; but in Sweden its northern range is less extensive, though the bird is common in the southern parts of that country. In Heligoland it has only once occurred in half a century. Below 60°–61° N. lat. in Russia it is generally distributed as far as the western slopes of the Ural Mountains, but on the east side it is scarce, and is as yet

unknown in Siberia. Throughout temperate Europe the Tawny Owl is found in suitable localities, but in the south it is very local, being almost confined to the higher wooded districts in the Spanish Peninsula and Italy, while it has not yet been obtained in Corsica or Sardinia. In North Africa and Asia Minor it is known to breed in small numbers, and Canon Tristram met with it among the cedars of Lebanon. At least six other members of the genus occupy the area between Turkestan and China.

The Tawny Owl breeds early, sometimes having eggs at the end of February and often by the middle of March in England, though later in the north of Scotland. A hollow in the trunk of some decayed tree, especially when covered with ivy, is a favourite site; but old nests of Rooks (even in frequented rookeries), Crows, Magpies and other birds are often occupied, and ruins, barns, out-buildings, disused chimneys &c. are occasionally resorted to; while instances of eggs being laid in rabbit-burrows, on ledges of root-trellised crags, or on the bare ground under shelter of fir-branches, are common. The 3–4 and even 6 white eggs are rather smooth in surface and nearly round in shape: measurements 1·8 by 1·5 in. The clicking note of the young resembles the word *kee-wick*; the old birds may be heard to utter their loud *hoo-hoo*, *whoo-it*, or *tu-whit*, *to-who* as it is rendered by Shakespeare, chiefly in the evening, but also shortly before dawn. During the day this species remains concealed, and appears to dislike the sunlight more than any other British Owl; while it depends largely upon its sense of hearing. Some bold individuals resent an approach to their nest, and cases are known of distinct aggressiveness. The food consists chiefly of voles, rats, mice, shrews, squirrels, moles, and occasionally of small birds, insects, and surface-swimming fishes.

The adult male has the upper parts of varying shades of ash-grey mottled with brown, with large white spots on the outer webs of the wing-coverts; tail barred with brown and tipped with white; under parts buffish-white, mottled with pale and streaked with dark brown; facial disk greyish, with a dark brown border; operculum large; legs feathered to the claws. Length about 15 in.; wing 10 in. The female is much larger, and often more rufous in plumage. This species is, however, subject to dichromatism, and there are two distinct phases—a red and a grey—the colour of which is independent of sex; the ruddy form being, perhaps, the more common in this country. The nestlings are covered with greyish down; afterwards the plumage is generally more rufous than in the adults.

TENGMALM'S OWL.

NÝCTALA TENGMÁLMI (J. F. Gmelin).

This small Owl, with thick and downy plumage, is an inhabitant of northern or elevated forest-regions, whence it migrates in severe weather; and, at long intervals, it has wandered to Great Britain in autumn and winter, as well as in spring, presumably on its return northwards. Since the beginning of this century about twenty examples have been taken in England—chiefly in Northumberland, Yorkshire, Norfolk and Suffolk; specimens have, however, been obtained as far south as Kent and Somerset (though a so-called Sussex example proved to be a Little Owl); also in Shropshire (once); near Preston in Lancashire (once); and in Cumberland on November 3rd 1876. In Scotland one was captured alive in December 1860 on Cramond Island, Firth of Forth; and an adult female was recorded from the vicinity of Peterhead on February 3rd 1886. As yet there is no record from Ireland.

On Heligoland Tengmalm's Owl has occurred about thirty times in fifty years. It inhabits Scandinavia, Lapland, Finland and Russia, almost up to the northern limit of the forests; while its southern breeding-range in the latter country coincides with the growth of *Pinus sylvestris*, and reaches as far as Saratov and Orenburg. In winter its migrations extend to Guriev, where the Ural River empties into the Caspian; but Dr. Menzbier does not believe in its asserted existence in the Crimea. It breeds in the higher

forests of the various branches of the Carpathians and the Alps, from Styria and the Tyrol westward, as well as in the Vosges, the Jura, and the mountains of Dauphiné; while it has occurred on both sides of the Pyrenees, though not further south in Spain. In other parts of Europe it is chiefly a migrant. Eastward, it appears to range through the forests of Siberia down to the Altai Mountains, and eastward to Baikalia, and even to the Sea of Japan, though not observed in Kamchatka; while in Arctic America it is represented by a slightly darker form, known to separatists as *Nyctala richardsoni*.

Our earliest knowledge of the breeding-habits of this, as of so many other Arctic species, was derived from Wolley, who found that in Lapland it occupied the *tyllas* or *uus* (nesting-boxes, formed of logs hollowed out at either end, with a hole cut in the side) set up by the inhabitants for the use of the Golden-eye Ducks; it also deposits its eggs in holes in trees, and often in some former abode of the Black Woodpecker. The smooth white eggs, laid between the beginning of May and the end of June, are 4–6, and exceptionally 10 in number: measurements 1·28 by 1 in. The food, which consists of lemmings, mice and other rodents, with large beetles and small birds, is generally procured during the latter half of the day; though sunshine does not incommode a bird which passes the summer in the continuous light of the high north. The call-note is a soft, long-drawn whistle.

The adult male has the upper parts umber-brown, with small white spots on the top of the head, large white patches on the back and wing-coverts, and five lines of spots—forming bars—on the tail-feathers; facial disk nearly complete, dull white with a dark outer ring; under parts greyish-white, irregularly barred and streaked with brown; legs and toes thickly covered with whitish brown-speckled feathers (in the Little Owl the feathers on the legs are short and the toes have merely bristles); bill yellowish-white. Length 9 in.; wing 6·5–7 in. The female is slightly larger than the male, but has the white spots less pronounced; the young are much darker than the adults, and the spots are chiefly on the wings and tail. A characteristic of this Owl, as shown by Prof. Collett of Christiania, is that the ear-regions in the skull itself, as well as the orifices, are unequal in size, and hence the skull is not symmetrical.

The late Sir William M. E. Milner recorded (Zool. p. 7104) the occurrence of the North American Saw-whet Owl, *Nyctala acadica*, near Beverley in Yorkshire. He was probably mistaken or imposed upon.

THE LITTLE OWL.

ATHÉNE NÓCTUA (Scopoli).

In 1758 Edwards figured a Little Owl caught alive in a chimney near the Tower of London, and since that date many examples have been obtained in England; but such numbers are known to have been imported from the Continent and intentionally liberated—to say nothing of those which have escaped from confinement—that it is impossible to say whether any of our visitors have been really wild. In May 1843 Waterton turned out five Little Owls near Wakefield, which he had brought from Italy the previous year; subsequently Mr. St. Quentin in Yorkshire, and Mr. Meade-Waldo in Hampshire, introduced many others which have bred at large, though in gradually diminishing numbers; while in 1888 the late Lord Lilford established quite a colony in Northamptonshire. Cages-full, brought from Holland, may often be seen in Leadenhall Market; and, without disputing the claim of this species to a place in the British list, it must be said that in the countries it inhabits, it is not much addicted to migration. As yet it has not been recorded from Scotland or Ireland.

Throughout Gätke's long experience the Little Owl was only once obtained on Heligoland. It is of exceptional occurrence in Sweden, while in Russia the Baltic Province of Courland marks its northern breeding-limit; but south of lat. 56° it is a generally distributed resident in Europe; especially in the countries washed by the

Mediterranean. Examples from Greece are paler than those from Western Europe; and an increase in sandy tint has led to the separation of the form which inhabits North Africa and Egypt as *A. glaux* or *A. meridionalis*. Other variations in tone are found in South Russia and in Asia Minor; while between the Ural Mountains and Northern China there is a fairly distinct species, *A. bactriana*, which has the toes covered with feathers instead of hairy bristles.

In April or May the Little Owl deposits its 3–5 white eggs in holes in ruins, farm out-houses and other buildings, hollow trees, disused rabbit-burrows, or rocks: measurements 1·4 by 1·15 in. Mr. Meade-Waldo informs me that incubation lasts twenty-eight days; that the bird feeds largely on insects, and frequents lawns in the evening to collect earth-worms; while in winter it catches birds at roost, and devours a large number of Thrushes; eating also mice and other small mammals. Early in the spring the male is very noisy, and repeats its note of *cu* or sometimes *cu-cu*, with exasperating monotony, and I have heard it do so again in autumn. This Owl is comparatively diurnal, and is therefore liable to be mobbed by small birds; for which reason it is often used as a lure by Continental bird-catchers. Its habit of alternately ducking down and drawing itself up to its full height is extremely grotesque.

The adult has the upper plumage brown, with triangular white stripes on the head, white spots on the nape and wings, and four bands of dull white on the tail; under parts dull white streaked with brown; facial disk greyish-white and ill-defined; no operculum; irides yellow; toes covered with hairy bristles. Length: male 9 in., wing 6 in.; female 9·5 in., wing 6·5 in. The young have a more rufous tinge than the adults.

According to the least elastic interpretation of the often disregarded laws of nomenclature, the generic name *Athene* is inadmissible, inasmuch as it has been previously employed in Entomology, and *Carine* should therefore be adopted; but many will agree with me that the point should be conceded, if only to preserve an association with Pallas Athéné, to whom this bird was sacred. The specific name *passerina*, sometimes employed, is distinctly inadmissible; for the *Strix passerina* of Linnæus (*Glaucidium passerinum* of recent systematists) is the Pigmy Owl, a bird hardly larger than a Sparrow, and one which has never occurred in the British Islands, nor is likely to occur, unless introduced.

THE SNOWY OWL.

Nýctea scándiaca (Linnæus).

This conspicuous bird was first noticed in Britain by the late Dr. Edmondston, who recognized it in 1811 on Unst, the most northern of the Shetland Islands, to which, as well as to the Orkneys, it is now known to be an almost annual visitor in the cold season, especially after northerly gales; while its occurrence in the Outer and the Inner Hebrides, as well as on the mainland of Scotland, is by no means unusual. In England it has been obtained on several occasions in Northumberland and Yorkshire, nine times in Norfolk, once in Suffolk, and about five times in Devon, while one on Exmoor may be given to Somerset. To Ireland its visits have been less frequent, but at intervals it has been observed in several counties during the winter months. In a wild state it has never been known to breed in the British Islands, though it has done so in captivity.

To the Færoes and Iceland the Snowy Owl is only a straggler;

but it is resident on Jan Mayen, and is only absent for a few months in winter from Spitsbergen, Franz Josef Land, Novaya Zemlya, Vaigatch, and the Kola Peninsula. Where small mammals are wanting it feeds on birds, and on the fells of Scandinavia it follows the lemmings on their migrations; while of late years it has been found breeding in many places where it had previously been unnoticed. In Russia it inhabits the tundras, nesting down to the Governments of St. Petersburg, Livonia, and even Orenburg; while in winter it occurs as far as the Caspian and Azov Seas. In the western half of Europe, it visits Pomerania, the north of Germany and Denmark in some numbers during cold weather, though hardly known on Heligoland; and its wanderings have extended to Holland, France, and Lower Austria. In Asia, it is found across Siberia to Kamchatka and Bering Island; while in winter it regularly visits Turkestan, and an example has even been obtained at Mardán, not far from Peshawur. On the American continent it breeds on the barren-grounds and the verge of the wooded districts, from Alaska to Labrador; on Grinnell-Land Col. Feilden found it nesting as far north as 82° 33′, though it abandoned those high latitudes at the end of August to reappear on March 29th; and it inhabits Greenland. In winter it has occurred in Texas, as well as the Bermudas; while a flock, perched on the spars of a vessel, has voyaged from Labrador half way to Ireland.

The Snowy Owl deposits its eggs on the bare ground or in a mere hollow scraped in the reindeer-moss, generally on some slight eminence. The white eggs, 10 of which have been found together, are often laid in pairs and at intervals, and are rather more elongated than usual: measurements 2·3 by 1·75 in. Prof. Collett says that the female and young are fed by the male, which exhibits great boldness and even ferocity when the nesting-place is approached. The food consists of lemmings and other rodents, Arctic hares, Ptarmigan, Willow- and other Grouse, Little Auks &c.; wounded birds being often picked up before the sportsman can reach them; carrion is also eaten, and the bird is an expert catcher of fish. Its flesh is highly esteemed by the inhabitants of the Arctic regions. The cry is a loud and repeated *krau-au*.

The plumage is white, barred and spotted with an amount of black or dark brown which varies greatly in different individuals; the female being more profusely marked than the male. Small but almost invisible tufts exist; there is no operculum; bill black; iris orange-yellow. Length: male 22 in., wing 15·5 in.; female 25 in., wing 17·5 in.

THE HAWK-OWL.

Súrnia funérea (Linnæus).

An example of this rare wanderer to Great Britain was taken in an exhausted state off the coast of Cornwall in March 1830; a second was shot near Yatton, in Somersetshire, while hawking for prey on a sunny afternoon in August 1847; a third on Unst, in the Shetland Islands, in the winter of 1860–61; a fourth near Glasgow in December 1863; and a fifth near Greenock in November 1868. Those of the above now available for critical examination belong to the North American form—distinguished by trinomialists in the United States as *S. ulula caparoch*—in which the dark transverse bands of the under parts are more ruddy than in the European, while the white on the upper parts is rather more pronounced; and there can be little doubt that these birds had received aid from vessels bound for Bristol or the Clyde. An example of the European form was, however, obtained near Amesbury, Wilts, and identified by Dr. R. B. Sharpe (P. Z. S., 1876, p. 334); while the Shetland bird (destroyed by moth) was also, judging by the description, from the Old World.

The Hawk-Owl does not migrate to any extent, and neither of the

forms has been found in Greenland or Iceland. The European race inhabits the pine-forests of Scandinavia and Northern Russia, in the latter up to 68° N. lat.; and though only breeding occasionally in the Baltic Provinces, it does so regularly as far south as the Governments of Moscow and Smolensk, and in the mountain forests of the Ural down to Orenburg. Thence it moves in winter to Poland and Northern Germany; very rarely to Heligoland; occasionally to Denmark, Holland, Belgium, Northern France, Lorraine, and Alsace; exceptionally to Austria. In Siberia, where it is found from the Ural to Kamchatka, and down to 43° N. in winter, its colours are purer and more strongly contrasted—as in the case of many other species; while this North-Siberian form, *Surnia doliata* (Pallas), occurs in Alaska. There it meets with the American race already mentioned, which ranges eastward to Labrador, and as far south as Pennsylvania in severe winters.

The Hawk-Owl begins to breed by the middle of April; and Wolley, to whom we owe the earliest details respecting its habits, found that it occupied holes in trees and the nesting-boxes set up by the peasants for the use of Ducks, in which it lays from 5 to 8 white eggs: measurements 1·55 by 1·2 in. In Arctic America these are said to be deposited in nests built of small sticks and twigs, in pine-trees: doubtless the deserted habitations of other birds, such as are utilized by the Long-eared Owl. The male bird fiercely attacks any intruder upon its domain, and both sexes appear to take part in the task of incubation. Adults are in full moult before the young can fly (Wheelwright). The cry is similar to that of a Hawk: a bird which, from its long tail, sharp wings and quick flight, this species much resembles in appearance. It flies much in the day-time and has been seen to strike down the Siberian Jay on the wing; its food consists of lemmings and other rodents, large insects, and birds up to the size of Ptarmigan or a Willow-Grouse; to obtain the latter of which it will sometimes attend upon the sportsman.

The general colour of the upper parts is dark brown, spotted with white; facial disk incomplete; tail long and graduated, narrowly barred and broadly tipped with white; under parts white, barred with dark reddish-brown; feet covered to the claws with greyish-white feathers; bill yellowish-white; irides straw-yellow; no operculum. Length 15 to 16 in. (tail about 7·5 in.); wing 9·2–9·5 in.; the female being larger than the male, and having the dark bars on the under parts slightly broader as well as more rufous.

THE SCOPS-OWL.

Scóps giú (Scopoli).

This Owl, the smallest which occurs in the British Islands, was first noticed as a visitor in the spring of 1805, when specimens were obtained in Yorkshire. Since that time examples have been recorded from Northamptonshire, Essex, Middlesex, Bucks, Berks, Wilts, Cornwall, Pembrokeshire, Cheshire, Lancashire and Cumberland; four occurrences are authenticated in Norfolk, and there are records from the south-east of Yorkshire. The often-repeated story of the breeding of the Scops-Owl at Castle-Eden Dene in Durham is untrue. One was killed in Sutherland late in May 1854; the late Col. Drummond-Hay has recorded a pair shot at Scone in May 1864; Mr. G. Sim says that one was picked up dead near Kintore on September 2nd 1891; and one was taken alive at the lighthouse on North Ronaldshay, Orkneys, on June 2nd 1892. In Ireland one was killed in co. Meath in 1837, one in Wexford in the spring of 1847, a third near Belfast in November 1883, and a fourth in Wexford on May 31st 1889.

The Scops-Owl is only a summer-visitor even to the temperate portions of Europe, exceptionally extending its migrations to Heligoland (once), Holland, Belgium, Northern France and Switzerland. South of the Alps and Carpathians it is not uncommon; while in Southern France, the Spanish Peninsula, Italy, and eastward to Greece, Turkey and Southern Russia, it becomes abundant.

In fact, it is found in summer as far north as the grape annually ripens, but it is most numerous in those warmer countries in which the olive-tree also grows, though there it may ascend to elevations far above the oil-producing zone. On migration, numbers are taken in Malta and served at table (Lilford). In the Mediterranean basin it appears to be to some extent resident, as it is also in portions of Northern Africa; but the majority pass onward, to winter in Abyssinia and Senaar. Our Scops-Owl is common in summer in Asia Minor, Palestine, Persia and Turkestan; but in the Indian and African regions it has several representatives of greater or less specific distinctness.

About the middle of May this Owl usually lays its white eggs (5–6 in number and measuring about 1·25 by 1 in.) in some hollow cork- or olive-tree, though elms, poplars and willows are used; sometimes, however, it resorts to a hole in a wall or a roof; while in the south of France it is said to make use of old Magpies' nests. It is partial to cork- and olive-woods as well as to groves of trees on the banks of rivers; and its note may frequently be heard in the gardens of large cities, such as Seville and Florence. To my ear, its cry is a clear, metallic, ringing *ki-ou*—whence the Italian names *Chiù* or *Ciù*. This Owl is particularly nocturnal, and, although it can face the sunlight, yet, except when disturbed, I never saw it on the wing in the day-time, during which it remains perched across a branch, often close to the stem. It then resembles, beneath the shady foliage, some gnarled stump or knot, but, on a tap being given to the trunk, this supposed knot will be seen to shoot up to double its former height and exhibit a pair of ear-tufts. So abundant is this quaint little bird on the wood-fringed banks of the Tagus and the Jaráma that I have found over a score in an afternoon's ramble. It feeds on beetles, grasshoppers, large moths and other insects; perhaps also on mice and small birds, but it is chiefly insectivorous.

The general colour of the plumage is grey, with a dark centre to each feather and vermiculations of various shades of brown; facial disk incomplete above the eyes; ear-tufts conspicuous when erected; legs feathered, but feet bare; beak black; irides yellow; operculum wanting. Length: male 7·5 in., wing 5·8 in.; female 8 in., wing 6·1 in. The female is often rather more rufous than the male, while the young are decidedly so.

Examples of the American *Scops asio* are said to have been obtained in Yorkshire and Norfolk, but no credence need be attached to these statements.

THE EAGLE-OWL.

Búbo ignávus, T. Forster.

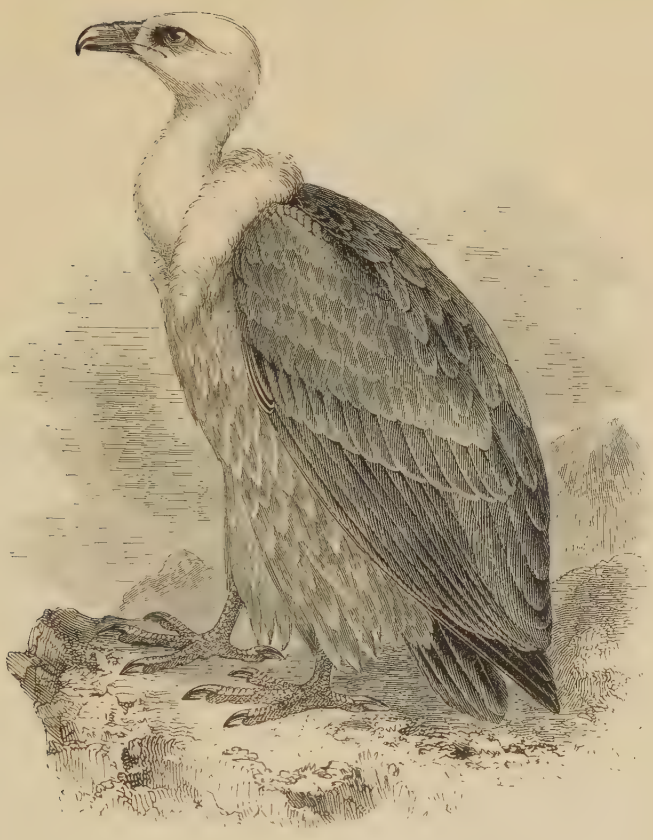
From time to time examples of this large and handsome species have been recorded in Great Britain; but some of these individuals are known to have escaped from that semi-captivity in which they are often kept, while suspicion attaches to others. Birds which were probably genuine migrants from Northern Europe have, however, been obtained, at long intervals, in the Orkney and Shetland Islands, and also on the mainland of Scotland; while in England a female which showed no sign of having been in confinement was shot near Stamford in Lincolnshire, in April 1879. Mr. Cordeaux records an individual seen near Easington, Holderness, in the winter of 1879–1880, as well as another noticed several times in October 1888, and no more likely district for a wanderer from Scandinavia can be imagined. There is no evidence that the Eagle-Owl has ever visited Ireland; but in the Science and Art

Museum, Dublin, there is an example of the South African *Bubo maculosus*, said to have been brought in the flesh to the late Dr. Birkett of Waterford on January 27th 1851 (probably an imported bird), and at one time this specimen was erroneously identified as the American *B. virginianus*.

The Eagle-Owl inhabits the forest-covered, rugged and mountainous districts of Europe, from Scandinavia, Lapland and Northern Russia to the Mediterranean; as well as Africa north of the Atlas Mountains. Specimens from beyond the Volga are pale in colour, while east of the Ural Mountains and across Siberia to the Sea of Okhotsk a still paler form, *B. sibiricus*, occurs; but birds from China to the Sea of Japan seem to be identical with those from Europe. In Central Asia, through the Himalayas to Tibet, its representative is the rather smaller *B. turcomanus*; while *B. blakistoni* is the species found in Japan; and *B. ascalaphus* (with shorter ear-tufts) inhabits Syria, Egypt and North-east Africa. America is occupied by *B. virginianus* and its sub-divisions.

In the forest-regions the Eagle-Owl deposits its eggs in some wide fork or other convenient place in a large tree, or makes use of an old nest of another bird; but in the mountains it selects ruins, slightly overhung ledges, or the roots of trees on crags, and the sides of narrow gorges, while it is not averse to the proximity of a cottage; and in the steppes it lays its eggs on the open ground. Incubation often commences early in April; the 2–3 nearly round eggs being creamy-white: measurements 2·3 by 1·9 in. No nest is originally made, but the young are often found upon an accumulation of castings, mingled with fur from rats, rabbits, hares, &c., which, with birds, form the food of this predatory species. In Spain and the Pyrenees the peasants make a practice of robbing the nest of the game supplied daily to the young by the parent birds, and substituting any available offal; for which reason the position is seldom revealed to strangers until the young are nearly ready to fly. The Eagle-Owl seeks its prey by day as well as by night; its cry, chiefly uttered early in the spring, is a loud *boo, boo*. In confinement this species breeds freely and has been known to live to a great age.

The general colour of the upper parts is dark brown or black, mottled with tawny-yellow; wings and tail transversely barred; under parts yellowish-brown with dark streaks and bars; head with long ear-tufts; operculum absent; legs thickly feathered to the toes; irides bright orange. Length: male 24 in., wing 18 in.; female 25 in., wing 18·5 in. Northern examples are larger than those from the south.



THE GRIFFON-VULTURE.

GÝPS FÚLVUS (J. F. Gmelin).

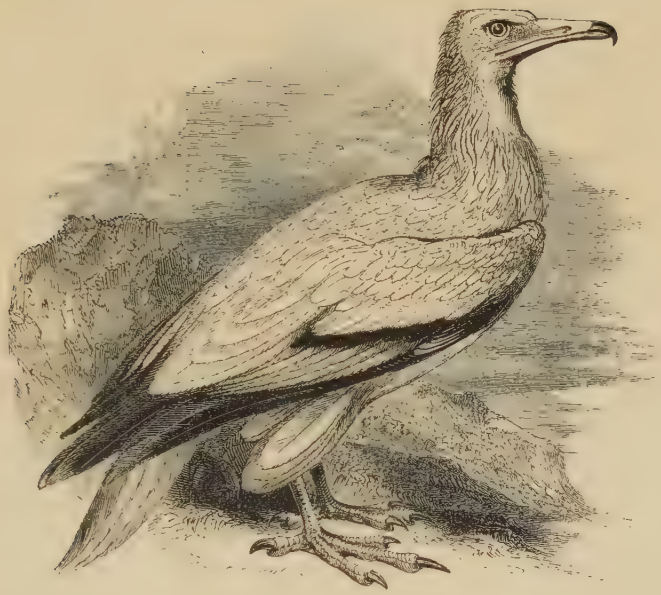
In the spring of 1843 a bird of this species (presumably gorged or injured) was caught alive on the rocks near Cork Harbour, and is preserved in the collection at Trinity College, Dublin. It was described by Thompson as being in adult plumage; but, after examination, I have no hesitation in saying that it is immature. There is no other instance of the capture of this Vulture in the British Islands; but an eminently cautious ornithologist, who is familiar with Griffons, informed me that some years since he had watched one soaring near Southampton Water.

The Griffon-Vulture was obtained near Utrecht in Holland about 1830; while it has been observed on several occasions in Normandy,

and has been captured on the cliffs to the north-west of Cherbourg. It annually visits the south of France in autumn; breeds in small numbers on the Spanish frontier in the Western Pyrenees; and is common in the mountainous portions of the Iberian Peninsula, as well as in most of the situations suitable to its habits in Southern Europe and the basins of the Mediterranean, Black and Caspian Seas. In Switzerland and the Carpathians it is of very rare occurrence, though it has been obtained in Poland, and in Germany as far north as East Prussia; while in Russia it is found up to about lat. 50°, and has considerably extended its range northward along the Ural Mountains during the last forty years. In Asia it can be traced to Turkestan and the mountains of Northern India, where, however, it meets with a larger form which has been separated as *G. himalayensis*; while in Africa it is resident as far south as Nubia (though represented by *G. kolbi* in the south), and is found in the Red Sea district down to Aden.

Towards the end of January the Griffon-Vultures may be seen building or repairing their nests with branches of trees and clawsfull of grass torn up by the roots. Their usual resorts are overhung ledges, cavities and fissures, such as are especially frequent in limestone ranges, and these are seldom accessible from above without a rope; while owing to thick scrub the base of the cliff is often unattainable. Exceptionally a nest has been found in a tree. In the latter part of February, though sometimes not till the end of March, 1 and not rarely 2 eggs are laid; these are rough in texture, and usually white in colour, but some are more or less marked with genuine blotches of a rusty-brown, as well as with blood-stains: measurements 3·7 by 2·8 in. A strong and unpleasant musky smell pervades the eggs, nest, and the whole dung-splashed ledge. Like other Vultures, this species hunts by means of its keen sight; the alteration in the flight of the nearest bird, on the discovery of a carcase, being quickly noticed and followed-up by more distant individuals. During the lambing-season I have seen it on the ground, assiduous in its attendance upon the ewes; but it is an arrant coward and I never knew of its touching any living creature. It is at all times somewhat gregarious.

The general colour is buffish-brown, with black on the wings and tail; the head and neck are covered with whitish down; and there is a broad ruff, which is composed of long whitish filaments in the adult, but of brownish acuminate feathers in the young; under parts striated buff in the adult, warm fulvous in the young. Length about 42 in., wing 28 in.; the female being slightly smaller than the male.



THE EGYPTIAN VULTURE.

NÉOPHRON PERCNÓPTERUS (Linnæus).

In October 1825 two birds of this species are said to have been observed near Kilve, Bridgewater Bay, Somersetshire, when one, which had been feeding on the carcase of a sheep, was shot, and proved to be in immature plumage. Another immature example was killed on September 28th 1868, in a farm-yard at Peldon, Essex, whither it had been attracted by the blood of some geese.

The Egyptian Vulture has wandered to Norway and Germany, but its most northern nesting-places seem to be in Savoy; while further south it is not uncommon in summer, arriving in Provence and the Pyrenees early in March. It is usually seen in pairs and never breeds in colonies; but a couple or two are to be noticed near almost every mountain-range in the Spanish Peninsula, as well as in Southern Europe generally, especially in the basins of the Mediterranean, Black and Caspian Seas. To Madeira it is only a wanderer, but it inhabits the Canaries, the Cape Verde Islands, and North Africa from Morocco to the Red Sea; while in winter it goes as far as Cape Colony. From Asia Minor it can be traced to Persia and

North-west India, but eastward its representative is a smaller form, *N. ginginianus*, which has a yellow bill.

The nest, built of branches, and warmly lined with hair and wool, has sometimes as a foundation a former abode of the Bearded Vulture, Raven or other large bird, and is usually placed on a ledge of rock; but in Turkey it is often in cypress and other trees, while in Spain it is sometimes on the ilex. The 2 eggs are seldom laid in Europe before April 10th; they are creamy-white, blotched and often richly suffused with chocolate-red: measurements 2·5 by 2 in. This Vulture feeds on the lowest animal and vegetable refuse, dung of all kinds, and bones from which the Griffons have stripped the flesh; it may also be seen following the plough, with long, slow strides, for what it can pick up. But though repulsive in its habits it appears to advantage on the wing, circling round without a flap of its outspread pinions, or at times sweeping low over the ground, like a Harrier.

The adult is white, with black primaries; the fore part of the head and neck being yellow and devoid of feathers; bill horn-brown; irides crimson; legs and feet flesh-colour. Length 26 in.; wing 19 in. The young bird (represented in the vignette) is dark brown, with greyish head and neck; irides brown. In confinement the full plumage is not attained until the third year.

THE MARSH-HARRIER.

Círcus æruginósus (Linnæus).

This species, known as the Moor-Buzzard so long as 'moor' retained a signification allied to 'mire' or 'marsh,' can now be barely included among our indigenous birds. The principal cause of its decrease in England has been the drainage of the fens in the eastern districts, and the reclamation of the marshy wastes in Somerset, Dorset, Shropshire, Lancashire, Yorkshire and some other counties, where it used to breed until within the last thirty or forty years. Sometimes a pair or two attempt to rear their broods in the Broad-district of Norfolk, but are rarely, if ever, allowed to succeed, and I know of no other county in which this Harrier has recently nested; though migrants from the Continent occur in spring and autumn, reaching Western England and Wales. In Scotland the Marsh-Harrier is very rare, even in the Solway district which is not altogether unsuited to its habits; the only example Booth ever saw was an immature bird in East Lothian; single instances are on record from Dumbartonshire as well as from Scalpa, near Skye; Mr. Macleay of Inverness has received but one in all his long experience; Mr. G. Sim of Aberdeen tells me that only a solitary

male, shot on May 12th 1881, has passed through his hands in thirty years; and on November 28th 1883 Mr. J. G. Millais shot a bird of the year in Hoy, Orkneys. In Ireland the species was formerly common about Lough Erne in co. Fermanagh, and along the valley of the Shannon, as well as in co. Cork and other districts; but now it is only known to nest in Queen's County (where it is protected by Lord Castletown) and a few other areas.

In Norway the Marsh-Harrier is of accidental occurrence, but it breeds in Denmark and the south of Sweden, while it is found sparingly in summer up to Archangel. In Middle and Southern Russia it is common, and resident in the latter, but from the northern districts it migrates in the cold season, as it does—at least partially—from its summer-haunts in Poland, Denmark, Germany, Holland, Belgium and the north of France. In the marshes of the Spanish Peninsula, Italy, and the rest of Southern Europe it is abundant throughout the year, as it is in North Africa, from Morocco to Egypt; while in winter it has been observed in Abyssinia, and perhaps even in the Transvaal. Eastward, it passes the summer in the temperate portions of Asia as far as the valley of the Ob, Turkestan and Kashmir; migrating in the cold season to India, Ceylon and Burma.

The nest, built of reeds and dry grass, is often a large firm structure, on a mass of sedge, but sometimes slight, and occasionally on the lower branches of a tree in or on the confines of a marsh. The eggs, 3–5 and even 6 in number, are pale bluish-white, seldom—if ever—with distinct brown markings: measurements 1·9 in. by 1·5 in. In the season the Marsh-Harrier is a sad destroyer of the eggs and young of waterfowl, while it also takes small mammals and birds; but during the greater part of the year it feeds largely on frogs and reptiles, and the scarcity of these when the marshes are frozen is one of the causes of its departure from the north of Europe.

The mature male has the head creamy-white, streaked with umber; mantle brown; primaries blackish; rest of the wings and the tail silvery-grey; under parts buff, striped with brown on the breast and with chestnut on the belly and thighs; under-wing white. In the female the tail and under parts are brown. Young birds are chocolate-brown, but the males have the entire crown of the head buffish-white, while the females have a yellowish patch streaked with brown, on the nape only. In subsequent stages the plumage of this species varies greatly. Length: male 21 in., wing 16 in.; female 22·5 in., wing 16·5 in.

THE HEN-HARRIER.

CIRCUS CYÁNEUS (Linnæus).

The Hen-Harrier frequents higher and less marshy ground than the preceding species, and although it used to breed in (or on the rising ground above) the fen-district of Eastern England, before the spread of agricultural improvements, it was probably never common there, Montagu's Harrier being often mistaken for it. Of late years its numbers have been so far thinned by game-preservers that in England and Wales it is now only to be found nesting on a few of the wildest and most extensive moorlands and wastes. Even in Scotland and its islands, where this Harrier was formerly numerous, it is rapidly decreasing as a breeding-species; but young birds are sometimes fairly abundant as migrants in autumn, when the adults also come down from the moors to the lowlands, and the male (sometimes called "the Goshawk") attracts attention by his pale grey plumage. These remarks apply equally to Ireland. Few—and those chiefly adults—are to be met with in the British Islands during winter.

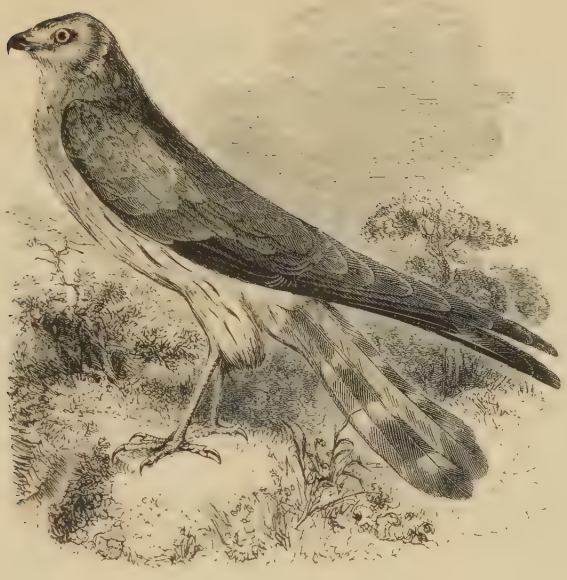
In Scandinavia and Northern Russia the Hen-Harrier is found in summer about as far north as lat. 69°, though rare near that limit; and it is only south of 62° that it becomes at all numerous in the

last-named country. From March or April until autumn it is to be found in suitable localities in Denmark, Holland, Germany, &c., down to the Alps and the Carpathians. In France—where from its abundance on migration in November it is called *Busard Saint-Martin*—a few breed on the high ground, down to the Pyrenees; while a fair number nest in the north of the Spanish Peninsula, as well as in Italy. Throughout the basin of the Mediterranean the Hen-Harrier is chiefly known on passage and in winter, when it visits Morocco, Algeria, and North-eastern Africa as far south as Abyssinia. Eastward it is found across Asia, except Kamchatka, up to a little above the Arctic circle (though rare beyond 60° N.) in summer, and down to Canton in winter. Over the northern half of America it is represented by a closely-allied species, *C. hudsonius*.

When placed on a bare hill-side the nest is often a slight structure, though, if in deep heather or a dried-up marsh, it is frequently a mass of roots and plant-stems a foot high; while in Germany a grain-field is a favourite site: whence the name *Korn-weihe*. The 4–6 eggs are bluish-white, exceptionally with genuine yellowish-brown markings or even bold rusty blotches: measurements 1·8 by 1·45 in. Incubation, which devolves upon the female, seldom commences before the latter part of May, and lasts three weeks. Like other Harriers, this species quarters the ground with great regularity in search of the small mammals, birds and reptiles which form its food; but, though destructive to game, there is no evidence that it is—or ever was—an especial scourge of the poultry-yard, as might be inferred from its trivial name. The flight is particularly buoyant, and often low; the light-coloured rump being very noticeable when the bird is soaring or hovering.

The adult male has the upper parts pale slate-grey; rump white; throat and breast bluish-grey; remaining under parts white. In younger males there are five ashy bars on the tail, and brown streaks on the flanks, thighs and nape. Cere, irides and legs yellow. Length 19 in., wing 13·5 in. The female is brown above, streaked with white on the nape and on the edges of the distinct facial ruff; rump white, marked with rufous; tail brown, with five darker bars—whence this sex was formerly called the Ring-tail, and was considered a distinct species; under parts buffish-brown, with darker stripes. Length 21 in., wing 15 in. The young resemble the female, and have, like her, brown irides, but their plumage is more rufous in tint.

In this and the preceding two species—and, I believe, in all except Montagu's and the Pallid Harrier—the outer webs of the primaries to the 5th *inclusive* are emarginated.



MONTAGU'S HARRIER.

Circus cineráceus (Montagu).

This species, first distinguished from the Hen-Harrier by Montagu, is smaller and more slender than that bird, with proportionately longer wings; and in any stage of plumage it may infallibly be recognized by the outer web of its 5th primary having no emargination.

Montagu's Harrier was never a resident in the British Islands, as erroneously stated by Seebohm; on the contrary, it is merely a spring and summer visitor to Europe (hardly excepting the Mediterranean basin), and its northerly range is not extensive. To us it comes in April, and a pair or two make their nest—often fruitlessly—almost every year in East Anglia; while instances are on record of it having bred of late years in Devon, Somerset, Dorset, Hants—including the Isle of Wight—and other counties of England, as well as in Wales; and it even reaches to Yorkshire, beyond which it is rare. In the Solway district a female, which had evidently been sitting, was shot, according to Mr. R. Service, on June 15th 1882, and there have been a few other occurrences; but the species is unknown in Scotland, except in the south, and statements that it has bred in Sutherland or visited Caithness are unfounded. In Ireland

six examples have been obtained since 1849, from co. Dublin southward; one of these on May 21st, one on July 3rd, and the others in autumn.

The St. Petersburg district and the Gulf of Finland appear to mark the extreme northern breeding-limits of this Harrier; but it is abundant in summer in Central and Southern Russia, and on the steppes of the latter a few remain throughout the winter. It seldom visits Heligoland, and is not numerous in Denmark or Northern Germany; but to the central and southern districts of the latter it is a regular visitor, arriving in March and leaving in October; while in Holland, Belgium, and many parts of France it is more or less common; large flocks often congregating at the time of migration. A considerable number breed in the Spanish Peninsula and other parts of the south of Europe, passing through in autumn and again in spring, and many are killed in Malta on their migrations to and from Africa. Montagu's Harrier also nests in Morocco and Algeria, while in winter it visits the Canaries and occurs in Africa as far south as Cape Colony. In Asia its range extends to Turkestan and the south-west of Siberia in summer, and to India, Ceylon and Burma in winter.

The nest is often a mere hollow lined with dry grass and bordered with twigs, in the middle of a small clearing in gorse or heather, and, on the Continent, in a field of grain; but in the fens it is more substantially built of sedge. The 4–5 eggs, laid at intervals of two or three days, towards the end of May, are usually pale bluish-white, but sometimes spotted with reddish-brown: measurements, 1·7 by 1·3 in. I never found the male bird on the nest. Like other Harriers, this species eats small mammals and birds, but its food consists principally of grass-snakes, vipers, lizards and other reptiles, large insects, such as grasshoppers and locusts, and, during the season, eggs of ground-nesting birds. From the crop of a male I once took two unbroken eggs of the Crested Lark, and the crushed remains of others. The flight is very light and elegant.

The adult male has the upper parts slate-grey, with a black bar across the secondaries; tail-feathers greyish, with five dark bars, except on the middle pair; throat and breast ash-grey; lower parts white streaked with rufous. Varieties ranging to an entirely sooty-black are not uncommon in this sex, but rare in the female. The latter is usually brown above, and buffish-white streaked with rufous-brown below; the young are similar, but almost chestnut on the under parts. Length: male about 18 in., wing 14 in.; female 19·25 in., wing 15·4 in.

THE COMMON BUZZARD.

BÚTEO VULGÁRIS, Leach.

As regards the British Islands, the epithet 'common' is annually becoming less and less applicable to this species; but there are districts in England—especially in the west—as well as Wales, where the bird may still be seen circling high in the air, and be heard uttering its plaintive mewing cry. Sixty years ago it used to breed in Norfolk and other eastern counties abounding with Partridges and ground-game, without being considered incompatible with their existence; but with the increase of Pheasant-worship the doom of the Buzzard was sealed. In Scotland it is chiefly found in the centre and west of the mainland, and a few pairs breed in the Inner Hebrides, but the bird is very rare in the Orkneys and of doubtful occurrence in the Shetlands. In Ireland it is almost extirpated as a nesting-species, but is an occasional visitor from autumn to spring.

The Common Buzzard appears to reach its northern breeding-limit at about lat. 66° in Sweden; while in Russia it is seldom found to the east of the Baltic Provinces or of the Vistula, beyond which its place is taken by the more rufous African Buzzard (*B. desertorum* of many authors); and Dr. Menzbier thinks that where the two forms or species meet they interbreed. From Poland westward, however, the Common Buzzard is generally distributed throughout Europe;

migrating to some extent even from Northern Germany during the colder months, but residing in the central districts. Small flocks pass over Heligoland throughout the year, except in June and July. In the south of Europe, though sometimes seen on passage in large numbers, the Buzzard is rather local as a breeding-species ; while in Western Asia, Egypt, and North Africa, the resident form is the aforesaid *B. desertorum*. Our Buzzard, however, inhabits the Cape Verde Islands, Canaries and Madeira, while the Azores owe their name to its abundance when the Portuguese discovered that group.

Cliffs, especially those covered with ivy or scrub, are favourite resorts in Wales, the Lake country and Scotland ; but in wooded districts the nest is usually built in a tree, and, when placed in a fork, is frequently a deep, bulky structure of sticks, with a slight cavity on the top, lined and surrounded with green leaves, which are renewed from time to time. The 3–4 eggs are greyish-white, blotched and streaked with reddish-brown and pale lilac ; measurements 2·25 by 1·75 in. Both birds take part in incubation, which usually begins about the middle of April and lasts four weeks. There is no evidence that this species is destructive to game, its ordinary food consisting of field-mice, moles and other small mammals, frogs, reptiles, grasshoppers, and even earth-worms ; but it takes small birds when it can pounce upon them unawares. Unless pressed by hunger, it is sluggish in its habits, though when on the wing its spiral gyrations are remarkably graceful.

The plumage varies greatly, irrespective of sex or locality. Very old birds are dark brown above and below, with a few light markings on the breast ; tail brown, with twelve darker bars ; legs bare of feathers and yellow in colour. Length : male 21 in., wing 14·5 in. ; female 23 in., wing 16 in. Very handsome varieties—ranging from cream-colour mottled with brown to pure white—are often found on the Continent. The young bird has the upper parts paler ; throat brown, streaked with white ; breast blotched with brown on a white ground.

A bird said to have been killed at Everley, Wiltshire, in September 1864, was considered by the late Mr. J. H. Gurney to be *B. desertorum* ; and to this species he also ascribed two examples, obtained near Newcastle, in the Hancock collection.

The American *B. borealis* is said to have been shot in Nottinghamshire in the autumn of 1860 ; and a dealer's specimen of the American *B. lineatus* is stated to have been obtained near Kingussie on February 26th 1863.

THE ROUGH-LEGGED BUZZARD.

BUTEO LAGÓPUS (J. F. Gmelin).

The Rough-legged Buzzard—distinguishable at a glance from the preceding species by having the front and sides of the legs feathered to the toes—is an irregular autumnal visitor to England; considerable numbers, chiefly of immature birds, sometimes making their appearance in the eastern counties, and remaining, if unmolested, for the winter. In the south and west it is less frequent; but it is not rare in the midlands and northward, its line of migration appearing to follow the Pennine range. In some of the northern and eastern parts of Scotland it is of almost annual occurrence; and in the winters of 1875–76, 1880–81, and the autumn of 1891, it was numerous down to the east and even the south of England. To Ireland, however, its visits have only been recorded about ten times: two of these in 1891 and one in 1895, all three in November. The often-repeated statement, made in 1836, that the Rough-legged Buzzard nested, "year after year, on the ground, amongst the heather, in the moor-dells," near Hackness, in Yorkshire, rests upon a gamekeeper's recollection of twenty-four

years earlier, and is contrary to the known habits of the bird; while the assertion by Thomas Edward that the nestlings were taken from a wood near Banff in 1864, is probably as incorrect as many of his other records.

The Rough-legged Buzzard is the commonest bird of prey in the higher districts of Scandinavia, and—beyond the wooded region—in Russia, nesting in the latter, irregularly, as far south as lat. 56°, as well as in the Baltic Provinces; while in winter it goes down to the northern shores of the Caspian and to the Asiatic side of the Black Sea. Eastward it breeds in Siberia down to Baikalia and up to Kamchatka; it is found in Alaska; and it visits Northern Japan as well as Turkestan during the cold season. Wanderers have occurred as far south as Malta and other islands of the Mediterranean, and the bird is an occasional winter-visitor to the Pyrenees, though only frequent to the north of the Alps and the Carpathians. In North America it is represented by the more rufous and darker *B. sancti-johannis*, fondly believed to visit England by owners of deep-coloured examples of the European bird.

The nest is of large sticks when placed in trees, but when on a crag it is a slighter structure, lined with grass. The 3–5 eggs, often laid by the middle of May, are similar to those of the preceding species, but the average dimensions are a trifle larger and the markings are sometimes still more handsome. This Buzzard feeds, to some extent, on frogs, reptiles and birds, but largely on such small mammals as lemmings, moles and mice; it can even manage an Arctic hare, and its partiality for rabbits has often proved fatal to it on the warrens of Norfolk and Suffolk. Open or marshy moorlands are more to its taste than wooded districts, in which respect it differs from the Common Buzzard; its flight is bolder; and in the air the white on the tail forms a good distinction. By some authorities this and other species with feathered legs have been placed in a separate genus, *Archibuteo*.

The adult has the head and neck creamy-white, streaked with rusty-brown; mantle dark brown; basal part of the tail white, with a broad brown subterminal bar and several narrower bars on a mottled ground; under parts buffish, barred with rufous brown, thickly on the abdomen and flanks; legs feathered to the toes on the front and sides. Length 23–26 in.; wing 17·2–18·5 in.; the female being larger than the male. The immature bird (represented in the woodcut) is browner in plumage and has less white on the tail; the under parts are streaked rather than barred with brown.

THE SPOTTED EAGLE.

AQUILA MACULATA (J. F. Gmelin).

In January 1845 two examples of this wanderer to the British Islands were shot near Youghal in Ireland, and one of them—an immature bird—is preserved in the Museum of Trinity College, Dublin. Two young males were shot in Cornwall on December 4th 1860 and early in November 1861, as recorded by the late E. H. Rodd; and on December 28th 1861 a male was shot near Somerley, Hants, by a keeper of Lord Normanton's. Mr. W. A. Durnford states that a bird of this species was picked up dead on Walney Island, Lancashire, in 1875; and on October 31st 1885 an example was obtained in Northumberland. In 1891 no fewer than four were taken in Essex and Suffolk between October 29th and December 16th.

A small form of Spotted Eagle breeds in the forests of Northern Germany and the Baltic Provinces of Russia, wanders to Sweden,

and can be traced through Poland to Bessarabia. A larger form (which breeds occasionally in East Prussia, Poland, Galizia and Transylvania), occupies the forest-region of Russia eastward and southward as far as the steppes, as well as the Caucasus, Central Asia to Northern China, some parts of India, Persia, and Asia Minor. This is the form which nests in Turkey, the districts watered by and south of the Danube, suitable localities in Italy and the islands of the Mediterranean, and, sparingly, in North Africa; while, though not common in the south of Spain, I have frequently seen and heard it in the Pyrenees. To Northern France, Belgium, Holland, and even the wooded valleys of the Moselle and the Rhine, both races are rare visitors. In winter they migrate entirely from their northern—and partially from their southern—haunts in Europe; numbers ascending the Nile valley to Abyssinia. The chief difference in the adults is that of size; an average male of the larger form being equal to a female of the smaller. In the young of the smaller form there is usually a more defined buffish patch on the nape, while the pale spots of the upper parts are limited to the secondaries and wing-coverts: whereas in the larger form these spots are also found on the scapulars and rump. It is chiefly—if not entirely—the larger which has visited the British Islands, and Mr. W. T. Blanford has decided that for this the proper name is *A. maculata*: Gmelin's *Falco nævius* being probably a Buzzard. A later name, *A. clanga* of Pallas, has been confusingly applied, especially on the Continent, to a larger and distinct species, namely the Steppe-Eagle, *A. orientalis*.

The nest, almost invariably built in a tall tree, is a large flat structure of sticks, with a slight lining of fresh twigs, leaves or grass; the 2–3 eggs, laid early in May, are greyish-white, streaked and often boldly blotched with ruddy brown: measurements 2·5 by 2·1 in. Nests found on the ground in the Dobrudscha and South Russia, and formerly ascribed to this species, have proved to be those of the above-mentioned Steppe-Eagle. The food consists largely of frogs, but also of reptiles, grasshoppers, small birds and mammals. The loud and shrill cry is repeatedly uttered in spring.

The general colour of the adult is warm coffee-brown or greyish-brown, according to the age of the feathers. The young bird is purplish-brown, with pale edges to the upper feathers—as shown in the cut—and ochreous streaks on the under parts. Length of wing: male 19–20 in.; female 21–23 in. The nostrils are round, not oval; the legs (feathered to the toes) are rather long and slender.

THE GOLDEN EAGLE.

AQUILA CHRYSÁËTUS (Linnæus).

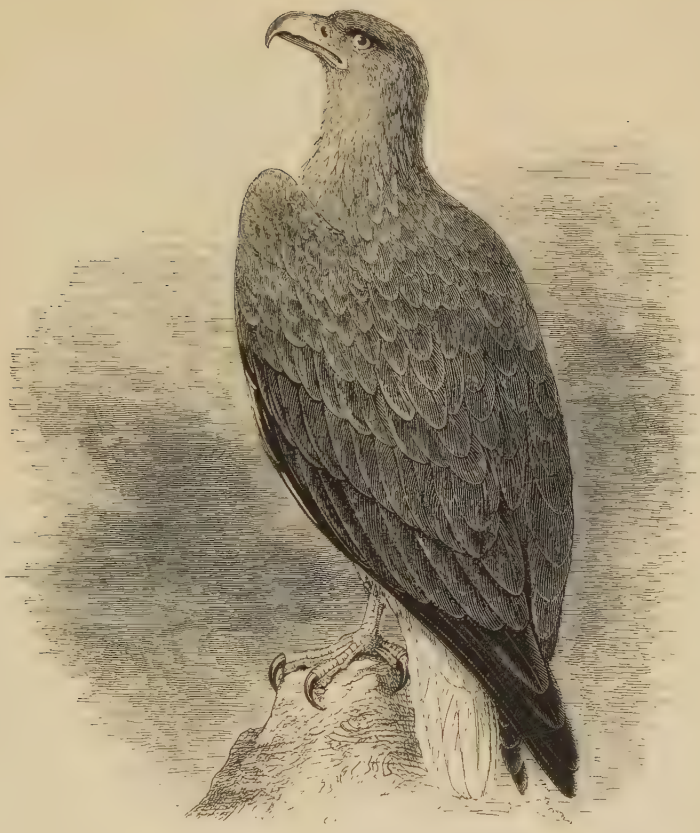
As regards England, authenticated occurrences of this species in the south are exceedingly rare; the birds recorded as "Golden" Eagles generally proving to be examples of the White-tailed or Sea-Eagle in the tawny-brown plumage of immaturity. At long intervals single specimens have been obtained in Sussex (Charleton Forest, prior to 1752), Norfolk (Stiffkey, November 1868), Lincolnshire (November 1st 1881 and October 29th 1895), and Northamptonshire (October 1849); while somewhat further northward this species is not much more frequent, although about two centuries ago it bred in Derbyshire and Wales, and almost within the last hundred years in the Cheviots and the Lake district. Across the Border, as Mr. R. Service informs me, there were eyries up to 1833 in the Moffat Hills, and for some years after 1850 in Ayrshire and Kirkcudbrightshire; but to the Lowlands of Scotland the Golden Eagle is now,

at best, a rare visitor in the cold season. Its present breeding-places are confined to the Highlands and to the islands off the western coast, where, owing to the protection afforded by many of the proprietors of deer-forests, its numbers have, to some extent, recovered from the destructiveness of grouse-preservers. It no longer, however, nests in the Orkneys, and has never been known to do so in the Shetlands. In Ireland a few pairs remain in the north and west, but their years are numbered.

The Golden Eagle inhabits the mountains as well as some of the forests of Europe, from Lapland to the Mediterranean; North Africa; Asia, as far east as the Amur and Southern Japan, and southward to the Himalayas; and also America north of lat. 35°; but it is unknown in Iceland or Greenland. Over this vast area considerable variations in size and plumage are observed:—examples from Western Europe being darker than those from the Central and Southern portion; while adults as well as young from the eastern half of Russia have a great deal of white at the base of the tail. The maximum of size appears to be attained in the lofty ranges of Central Asia and the Himalayas, but some American birds are very large. Four distinct species—one of which is divided into five varieties—are recognised by some Russian naturalists!

The nest—placed on the ledge of a crag in mountainous regions, but often in a tree, and occasionally on the ground—is usually a large platform of sticks, lined with softer materials and the fresh tufts of *Luzula sylvatica*. The eggs, laid early in April, are 2 and sometimes 3 in number, while an exceptional instance of 4 was recorded by the late Sir J. W. P. Campbell-Orde. Some are dull greyish-white or mottled-buff; others are streaked, blotched, or even richly suffused with shades of reddish brown and lilac; and at times only one white egg will be found in the nest: measurements 2·9 by 2·3 in. In Scotland the "Black Eagle," as it is called (and some equivalent of that name prevails wherever the bird is known), feeds to a great extent upon mountain-hares, while on the Continent it eats marmots and similar animals; it also takes grouse and other birds, lambs, occasionally fawns and the 'calves' of red deer, and, when pressed by hunger, it does not refuse carrion. Its note is a shrill squeal, ending in an abrupt bark.

The general colour is dark brown, tawny on the nape; the tail is mottled with dark grey in the adults, but the basal half is white in the young, which have also white bases to their body-feathers; thighs dark brown; legs feathered to the toes. Length 32–36 in.; wing 24–27 in.; the female being decidedly larger than the male.



THE WHITE-TAILED EAGLE.

HALIÁËTUS ALBICÍLLA (Linnæus).

Immature examples of this species—also called Erne, Cinereous or Sea-Eagle—are not unfrequently observed in the maritime counties of England in autumn and winter, at the time when the birds reared in the northern parts of Europe are on their migration southward, but adults are of very rare occurrence. Within the last hundred years the White-tailed Eagle bred in the Isle of Man and the Lake district; in comparatively recent times in Galloway, Dumfriesshire, and other places on the south-western mainland of Scotland, and not long ago in Argyll; but now its eyries are confined to some of the western and northern islands. In Ireland, where it was formerly more numerous than the Golden Eagle, its propensities for carrion have led to its destruction by poison, and only on the west coast can a pair or two be found.

The White-tailed Eagle is now only a visitor to the Færoes; but it is a resident in Iceland, and also in the south of Greenland, visiting the northern districts of the latter in summer. In North America it is represented by the Bald Eagle, *H. leucocephalus*, a species with a pure white head and neck, which has erroneously been stated to occur in Iceland, Scandinavia, and even in Ireland! Our White-tailed Eagle occurs on Novaya Zemlya (Pearson), and inhabits the neighbourhood of salt or fresh water in Scandinavia, Denmark, Northern Germany, Russia, the valley of the Danube, and Turkey; visiting the rest of Europe, the Canaries, and Northern Africa; it even breeds in the reed-beds of Lake Menzaleh in Lower Egypt; while eastward we trace it across Asia to Kamchatka, Manchuria, and China down to 28° N. in summer; and in winter to Japan and India. Though it wanders to the Commander Islands, the representative species in the long chain of the Aleutian Islands appears to be the American Bald Eagle.

The nest, similar to that of the Golden Eagle, is often placed on a sea-cliff, but sometimes on an inland rock; frequently in a tree or wide-spreading bush on some small island in a loch; occasionally on the ground. When built in swamps, as in Lower Egypt, it resembles a gigantic nest of the Marsh-Harrier, being raised to a considerable height above the deep surrounding mud. The eggs, usually 2 in number, dull white in colour, and measuring about 2·85 by 2·2 in., are laid in Scotland in April; but as early as February in the south-east of Europe, and by December or January in Egypt. Few kinds of fish, flesh, fowl or carrion come amiss to this species. The cry is a loud yelp.

Very old birds have the head and neck nearly white streaked with ash-brown; mantle brown; primaries nearly black; tail wedge-shaped, and white in colour; under parts dark brown; beak, cere, irides, legs and feet yellow. Length: male 33 in., wing 24 in.; female 36 in., wing 26 in. The young bird is dark brown, mottled with fulvous on the mantle and wings; tail dark brown; beak black; cere and irides pale brown. The full plumage is not attained till the fifth or sixth year. Varieties of a uniform bluish-grey, yellowish-grey, and silvery-white are on record.

In the White-tailed Eagle the lower part of the tarsus is bare of feathers, while the whole length of each toe is covered with broad scales. In the foot of the Golden Eagle the tarsus is clothed with feathers to the base of the toes, each of these being covered with small reticulations as far as the last joint, beyond which there are three broad scales.

THE GOSHAWK.

ÁSTUR PALUMBÁRIUS (Linnæus).

Adult examples of the Goshawk are rarely obtained in the British Islands; but immature birds have occurred, at long intervals, in autumn and winter, and sometimes in spring. These visitors are, naturally, most frequent on the east coast of England and Scotland; but instances are on record from the vicinity of London, the southern, the midland, and even the western counties. In Saxon times, and as late as 1472 (Paston letters), falconers used to turn their Goshawks into the woods in spring, in order that young might be obtained later, but it may be doubted if the species was ever numerous in England. In Scotland, prior to 1804, Colonel Thornton received a nestling from the forest of Rothiemurchus, and saw some eyries in the old fir-woods in the valley of the Spey; but there is no later proof that this species has bred in any part of Great Britain. Neither Mr. R.

Service nor the veteran taxidermist Mr. Hastings have ever met with an example anywhere in the Solway district; and it must be remembered that in many parts of Scotland (and elsewhere) the Peregrine Falcon is often miscalled 'Goshawk.' It is unknown in Sutherland, and nearly so in Caithness and the Shetlands; but in the Outer Hebrides a young male was shot in December 1887 or January 1888. In Ireland only three occurrences are authenticated.

The Goshawk is a rare visitor to Heligoland. It is common in the forest-regions of Scandinavia and Russia, down to the Black and Caspian Seas; it is also abundant in the wooded districts of Germany and Central Europe generally, and not rare in many parts of France, especially Normandy. In Italy, as well as in the Spanish Peninsula, it is rather scarce and local, though it breeds as far south as Andalucía; it even nests in Morocco; while in winter it visits Egypt and Palestine. Eastward it ranges across Asia to the Sea of Okhotsk, Japan, and China. The young migrate from the northern districts; the adults rarely do so.

Though the old nest of some other species is occasionally repaired, the bird frequently builds its own, which is a large structure of sticks, placed in a tree—generally on the outskirts of a forest or near a clearing, and used year after year. The 4 eggs, laid in April or early in May, are pale bluish-grey, occasionally with a few rusty markings: measurements 2·3 by 1·8 in. The Goshawk is a bold and rapacious species, preying upon hares and smaller mammals, water-fowl, game-birds and poultry; the shortness of its wings and the steering power given by its comparatively long tail enabling it to follow with marvellous rapidity every turn of its quarry, which it takes in a style called *trussing* by falconers. Its hearing is very acute.

The adult has a narrow white line above the eye and ear-coverts; upper parts ash-brown, with four broad dark bars on the tail; under parts white, thickly barred with dull black; cere, iris, and legs yellow. Male: length 20 in., wing 12 in.; female: length 23 in., wing 14 in. The young bird has the upper parts brown, and five dark bands on the tail; under parts warm buff, with numerous drop-shaped markings of dark brown; iris pearl-white.

A specimen of the American Goshawk, *Astur atricapillus*, said —on somewhat slight evidence—to have been obtained in Perthshire in 1869, is in the Edinburgh Museum; and another, shot in Tipperary in 1870, is in the Dublin Museum. This distinct, though nearly allied species, has closely freckled—not barred—under parts; it is not likely to be a genuine visitor to the British Islands.

THE SPARROW-HAWK.

ACCÍPITER NÍSUS (Linnæus).

The Sparrow-Hawk is generally distributed in Great Britain and also in Ireland, wherever there are woodlands suited to its tastes. It is emphatically an arboreal species, and is, naturally, of rare occurrence in the Orkneys, Shetlands, and Outer Hebrides, where the long-winged Kestrel often bears the name—as elsewhere it suffers for the delinquencies—of this dashing short-winged species.

In autumn the Sparrow-Hawk is frequently observed at our light-ships and stations on the east coast; and large numbers sometimes cross Heligoland on their way from higher latitudes—the young passing first, and the adults following. The breeding-range extends northward to the limits of forest-growth, and southward to the Mediterranean; comparatively few birds, however, remain to nest in Spain or Italy, where this species is chiefly noticed on passage, when following the flocks of small birds on which it preys. It occurs in Madeira, the Canaries, North Africa, and Egypt as far up the Nile as Assouan, and migrates to Kordofan. In Asia it is found across Siberia to Kamchatka and Japan, and breeds, sparingly, down to Kashmir and the Himalayas, while in winter its range extends to the latitude of Canton. There are many other members of this genus, possessing a well-defined geographical range; but the

only one which need be noticed is the Levant Sparrow-Hawk, *A. brevipes*, which inhabits the area between Central Russia and Syria, and appears to be extending its range in a westerly direction ; it may be recognized by its much shorter legs.

Like the Goshawk, this species usually builds its own nest, composed of sticks with a slight lining of twigs, and invariably places it in a tree, often on the branches close to and sheltered by the bole, or near the top: sometimes, however, it adapts and adds to the deserted abode of a Crow, Wood-Pigeon, or other bird. The 4–6 eggs are pale bluish-white, blotched, mottled, and often zoned with various shades of reddish-brown : measurements 1·6 by 1·25 in. In this country they are generally laid early in May, at intervals of two days, and incubation lasts nearly seven weeks. When urged by the necessities of a clamorous brood the Sparrow-Hawk is even more bold and rapacious than at other times, and is then especially dangerous to the young of game and poultry ; but it feeds principally on other birds, even Magpies and Wood-Pigeons, snapping them up in an instant, as it glides with rapid though stealthy flight along hedges or the skirts of woods. Like all the other short-winged species, it feeds on the ground—usually under shelter of a tree, bush or hedge-row, and the small heap of feathers unmistakably marks the spot where it has dined ; for, unlike the Falcons, the Hawks require both feet to secure their quarry and do not seem to know where its life lies, so that perching is then awkward for them (Delmé-Radcliffe). In India and Japan the Sparrow-Hawk is still prized by native falconers ; and in this country it has been trained to take Quails, Partridges, &c.

The adult male has the upper parts slate-blue, mottled with white on the nape ; tail greyish-brown, with from three to five dark bars ; cheeks and ear-coverts bright rufous ; under parts buff, barred with reddish brown ; cere greenish yellow ; irides orange ; legs and feet yellow ; middle toe very long and slender. Length 13 in., wing 7·75 in. The female is much larger, measuring 15·4 in., wing 9 in. ; her breast is usually greyish white, barred with ash-brown, and there is a rufous patch on the flanks ; when very old, however, she attains the plumage of the adult male. The young are sepia-brown above, with rufous edges to the feathers ; and the under parts are white, with rufous-brown bars, so broad on the throat as almost to deserve the name of spots ; iris pale yellow to orange. Both sexes have been known to breed in immature livery. Few birds vary so much in plumage and size as the Sparrow-Hawk.

THE KITE.

MÍLVUS ICTÍNUS, Savigny.

This species—the Anglo-Saxon *Cyta* (Newton), and also known as the Gled or Glead, in allusion to its gliding flight—may, from the colour of its tail and upper plumage, conveniently be called the Red Kite, when the necessity arises for distinguishing it from its congeners. Within the recollection of persons still living it was tolerably common in many of the wooded districts of England and Wales, but for many years it has not been known to breed in the south-eastern counties; one of the last nests known in Lincolnshire—a former stronghold—was in 1870; and in the few spots still inhabited in the Western Midlands, the Marches, and Wales, this handsome bird will soon be exterminated by the collector of British specimens unless the most stringent measures are taken. In Scotland it survives in a few localities, though there the value of its tail-feathers for salmon-flies adds to the risk which it elsewhere incurs from the gamekeeper; while, exceptionally, stragglers have reached the Orkneys, and perhaps the Shetlands. The Kite is not, however,

much addicted to migration. At long intervals single birds or pairs —wanderers from the Continent—are observed in the eastern portion of Great Britain; but as the Kite is not often permitted to pass westward, the gaps left by the destruction of our indigenous and resident birds have little chance of being filled. In Ireland, according to the late Mr. More, it has only been observed five or six times.

To Heligoland the Kite is a very rare visitor. In Scandinavia it is not known to breed north of lat. 61°, whence it emigrates on the approach of cold weather; as it does also from Denmark and Germany, where it is common in summer. In Russia it is not found to the east of the Governments of Tula and Orel, or of the river Dneiper. Over the rest of Europe it is generally distributed, and in the Mediterranean basin it is resident, as it is in the Canaries. It is not rare in North Africa as far east as Tunis, but in Egypt it is represented by *M. ægyptius*; it breeds, however, in Palestine and Asia Minor, though more abundant there in winter.

The nest, which is usually placed in a tree—though in North Africa it has been found in crags—is composed of sticks, mixed with a variety of rubbish—such as bones, fragments of newspapers and old rags, as well as the "lesser linen" for which the Kite's predilection was well known to Shakespeare. The eggs, laid in April or early in May, and rarely more than 3 in number, are dull white or very pale blue, spotted, blotched, and sometimes streaked with reddish brown: measurements 2·25 by 1·75 in. The food is offal, small mammals, birds, reptiles, frogs, and fish; but though the Kite is detrimental to very young game and poultry (especially when it has to satisfy a brood), and is emphatically a "snapper-up of unconsidered trifles," it is not a powerful species. On the wing the wide circles of its flight are remarkably graceful; either side of the outspread tail being raised or depressed at will, and serving to govern the bird's course. In the search for prey a large extent of ground is daily covered. The cry is a shrill *whéw, heh-heh-heh.*

The adult has the head and neck white, striped with black; mantle rufous-brown; primaries blackish; tail rufous and much forked; under parts rusty red, striped with dark brown on the breast; under side of wings whitish, with a dark patch (very conspicuous in flight); legs and feet yellow; iris yellowish-white. Length about 25 in., wing 20 in. The male is a trifle smaller than the female, but his colours are brighter and his tail is longer and more forked. The young are paler and more mottled on both upper and under parts.

THE BLACK KITE.

MILVUS MÍGRANS (Boddaert).

Although the Black Kite is a regular summer-visitor to the valleys of the Rhine and the Moselle, as well as to other districts of the Continent at no great distance from our shores, yet only one example is known to have been obtained in Great Britain. This, an adult male, now in the Newcastle Museum, was taken in a trap in the deer-park at Alnwick, and brought in a fresh state to the late Mr. John Hancock on May 11th 1866.

On Heligoland the Black Kite has seldom been identified, but it arrives on the southern side of the Baltic about the end of March, and leaves again in September. Owing to its partiality for marshy forests, open valleys and the vicinity of water, it is local in its distribution, and it is only an irregular visitor to Holland, Belgium and the north of France; but it breeds annually, in suitable localities, in Germany, the lake-districts of Switzerland, and the southern half of France; while it is abundant in Spain from the beginning of March until October, though not numerous on the mainland and islands of Italy, or in Greece. It is distributed over Central Europe, and is found in Russia, from Finland and the

province of Archangel down to the Caucasus and the Caspian Sea. In Asia it breeds as far east as Southern Afghanistan, though as a rule the representative species beyond the Ural Mountains are *M. govinda* and *M. melanotis*. In Egypt the resident bird is the yellow-billed *M. ægyptius*, but in winter the Black Kite visits South Africa and Madagascar (Newton). It breeds in Africa north of the Atlas, and is resident in the Cape Verde Islands.

The eggs, seldom laid before the beginning of May, are usually 2 in number, similar in appearance to those of the Red Kite, but rather smaller. The nest is frequently placed in a crag in Algeria, particularly one studded with bushes or scrub; in Europe, towers, ruins, and especially trees—even in populous towns like Pera—are selected, and in Spain I have found ten or more nests in a small patch of marshy wood. At Bayonne the Black Kite may often be seen crossing the streets and steering its way among the telegraph wires, or picking up offal and small fish from the river Adour. The latter, which it often devours while on the wing, are favourite food; also reptiles, frogs, grasshoppers, small birds and mammals.

The adult male has the throat and forehead whitish and the crown pale rufous, streaked with black; mantle umber-brown; tail rather rufous-brown with blackish bars; under parts rufous-brown, especially the flanks; bill black. Length 24 in.; wing 18 in. The female is slightly larger. The young bird is paler in colour, and the upper feathers have pale edges. The term 'Black' is not inapplicable to this bird as observed flying, when the dark under-surfaces of the wings and the general sombre hue of the plumage are noticeable; the tail is much less forked than in the Red Kite.

An example of the American Swallow-tailed Kite, *Elanoides furcatus*, was taken alive during a heavy thunderstorm, near Hawes in Yorkshire, on September 6th 1805, but afterwards made its escape, and there is ground for suspecting that it had previously been in confinement. There are other records of the occurrence in Great Britain of this chiefly Neo-tropical species, but none of these are, to my mind, satisfactory, and the species has never occurred on the Continent.

I have examined an immature specimen of the Black-winged Kite, *Elanus cæruleus*, said to have been shot about 1862, in co. Meath; but it was unrecognized for ten years, and the evidence is insufficient. The species is semi-tropical. In the Museum at Dieppe is (or was) a specimen said to have been obtained on September 1st 1841, after a gale from the south-west.

THE HONEY-BUZZARD.

PÉRNIS APÍVORUS (Linnæus).

The Honey-Buzzard is an annual summer-visitor to those wooded districts of Europe which lie between 43° N. lat. and the Arctic circle, and a limited number pass as far west as Great Britain in May and June; while the fact that some nested with us has been known since the days of Willughby. On the return-passage in autumn, examples, mostly young, have been obtained in England up to the latter part of November, as well as on the east coast of Scotland. To Wales this species rarely wanders, but it has bred several times as far west as Herefordshire, and its nests have been found at intervals in various counties, from Hampshire up to Aberdeenshire and East Ross-shire. About 1860 it became known that several pairs annually resorted to the New Forest; £5 soon became the standard price which collectors of 'British' specimens were willing to pay for a couple of well-marked eggs; and nearly £40 were given for a pair of old birds with their nestlings. By about 1870 most of the birds had been killed; and it is with difficulty that the few which still visit us are preserved. In the Shetlands the

Honey-Buzzard has occurred several times on migration, and probably in the Orkneys. To Ireland it is a rare visitor, chiefly in autumn.

In Norway the Honey-Buzzard does not breed above the south-eastern districts; but in Sweden, Finland and Russia it extends up to, and even a little beyond, the Arctic circle. Large numbers pass over Heligoland. Southward, this species is distributed throughout Europe during the summer, to Bulgaria, Italy as far as the Adriatic, the Pyrenees, and the mountain forests of Northern Spain; but in the rest of the Peninsula, and, in fact, throughout the Mediterranean basin, it is principally known on passage. Vast flocks have been observed traversing the Straits of Gibraltar from Morocco early in May and repassing in September; while the species is a regular migrant in Tunisia, less frequent in Egypt, passes by Sinai, and crosses the Bosphorus to and from Asia Minor. Eastward it can be traced through Turkestan to Eastern Siberia, where it becomes rare, as it is also in China and Japan. In the Indian region its representative is the Crested Honey-Buzzard, *P. ptilorhynchus*. Our Honey-Buzzard visits South Africa and Madagascar in winter.

The nest, usually placed upon the remains of the former abode of some other large bird, and often in the main fork of an oak or a beech, is well lined—and sometimes sheltered—with fresh twigs and leaves of the latter. The round and glossy eggs, generally 2, sometimes 3, and exceptionally 4 in number, are laid in June, and are creamy-white, blotched and often deeply suffused with rich brown or red: measurements 1·9 by 1·7 in. Both male and female incubate, the sitting bird being regularly fed by the other. Wasps, wild bees and their larvæ form the principal food of this species in summer, but other insects are also eaten, as are, occasionally, birds, mice and other small mammals, slugs, worms and caterpillars. Owing to the thickness of the foliage at the time of its visits, and the fact that its prey is chiefly obtained upon the ground, this species is by no means conspicuous, except during migration. It runs with ease and rapidity. The cry, seldom uttered except by the young, is a shrill *kee*.

The adult male has the head ashy-grey; upper parts brown; three or four distinct blackish bars on the tail; under parts white, barred and spotted with brown on the breast. The female is slightly larger, and the grey on the head is usually limited to the lores. Length from 22 to 25 in., wing 17–18 in. The young bird has a whitish head and pale edges to the upper feathers; the under parts being white streaked with brown: a dark brown form, however, occurs, while varieties are not rare.

THE GREENLAND FALCON.

FÁLCO CÁNDICANS, J. F. Gmelin.

Considerable difference of opinion has long existed respecting the specific distinctness of some of the large Northern Falcons, for which several systematists have adopted the genus *Hierofalco*; and the late Mr. John Hancock was the first to show that in the Greenland Falcon the prevailing ground-colour is white at all ages, whereby it may always be distinguished from the Iceland Falcon, or any other member of the group which occurs in Europe. Being a summer-inhabitant of Arctic regions, where food is almost unobtainable in winter, this species is forced to migrate, and consequently examples have been taken from time to time in the British Islands. These have naturally occurred with greater frequency in Scotland and the north of England than in the south, though an immature bird, the subject of the present figure and now in the British Museum, was shot in Pembrokeshire, and examples have been obtained in

Breconshire, Sussex, Devon and Cornwall. Ireland, as might be expected from its geographical position, has not been unfavoured: Mr. R. J. Ussher informs me that nineteen examples have been identified, and that on eight occasions birds which seemed to be pairs were noticed, while the records for April are twice as numerous as for any other month, though the winter of 1883–84 afforded eight. There are also eleven Irish records which cannot definitely be referred to this or the next species.

It may be doubted whether the true Greenland Falcon nests to the south of the Arctic circle. It was obtained on Jan Mayen Island, and is probably the species which has been seen on Spitsbergen, as well as Novaya Zemlya; while its head-quarters are in the northern portion of the country whence it takes its name. Mr. Chichester Hart, of H.M.S. 'Discovery,' saw a pair nesting on Grinnell Land, in 79° 41′ N. lat.; while westward a 'white' Falcon can be traced through Arctic America to Alaska, across Bering Straits to Kamchatka and Arctic Siberia, and, in spring, to the Amur. Mr. Barrett-Hamilton brought from Bering Island a white bird which seems to be *F. candicans*. No example has been obtained on Franz Josef Land. In the British Museum are specimens, presented by Mr. J. G. Millais, from Akureyri and Reykjavik in Iceland; and from that island were brought (probably in transit) the 'white falcons' which were accepted as tribute or gifts worthy of royalty in the Middle Ages. Greenland Falcons have visited Norway, Sweden and Heligoland, and have even ranged as far south as the French side of the Pyrenees in winter.

The eggs, sometimes 4 in number, are pale orange-red in ground-colour, with darker mottlings and spots: measurements 2·2 by 1·8 in.; they are placed on a bare ledge of rock, or on the old nest of some other bird. In the north the food of this species consists of Ptarmigan and Willow-Grouse, lemmings and other mammals.

The adult is chiefly white, with blackish streaks and elongated spots on the upper parts; the under parts being pure white or only slightly spotted, and the flanks devoid of bars; but the individual variation is very great. In the first plumage the markings are brownish and very broad above, but drop-shaped below, the tail being more or less barred. The adult dress is assumed at the first complete moult, and never varies afterwards. Length of the male 21 in.; wing 14·5 in.; female 23 in.; wing 16 in. Cere, bill, legs and feet pale yellow in the adult; light bluish-grey in the young. In this, as in all true Falcons, the irides are dark hazel:—not yellow, as in the short-winged Hawks.

THE ICELAND FALCON.

FALCO ISLÁNDUS, J. F. Gmelin.

In the Iceland Falcon the prevailing colour is either brown or grey, according as the bird is young or old, and in the adult the flanks are always more or less barred. The occurrences of this species in the British Islands appear, so far as evidence goes, to be less frequent than those of the Greenland Falcon, possibly because there is not the same necessity for migration; but identified specimens have been obtained in the Shetlands, Orkneys, Outer and Inner Hebrides, and in several localities on the mainland of Scotland; also in Northumberland, Westmoreland, Yorkshire, and on Herm in the Channel Islands. In Ireland authentic examples have been captured in Donegal, Antrim, and near Belmullet and Westport in co. Mayo—the last in 1883.

The typical form of this Falcon inhabits Iceland, where it breeds in precipitous cliffs above the numerous lakes—especially near

My-vatn, whence the late W. Proctor of Durham used to receive eggs and a few skins almost every year, after he had visited that locality. In Greenland, south of the Arctic circle, there is a representative form which is known as *F. holboelli*; this is whiter than the typical Icelander, though darker than the Greenlander, and has some bars on the flanks, while there is a little yellow at the base of the bill. Either this, or else the true Icelander, occurs on Jan Mayen Island, as well as the Greenland Falcon. Labrador is inhabited by *F. obsoletus* of American systematists, a very dark greyish-brown bird, easily recognizable. I cannot find any conclusive evidence of the occurrence of the typical Icelander in Germany, Holland, or France, but the species has been taken in Norway.

In Iceland the eggs, 3–4 in number, and similar in size and appearance to those of the Greenland Falcon, are deposited on the ledge of a cliff, or on the former abode of some other bird, frequently a Raven. The food consists of water-fowl, waders, and largely of Arctic species of Grouse (often called 'Ptarmigan'), which are captured on the wing.

The adult is represented by the front figure in the engraving; the prevailing colour of the upper parts being brownish-grey on a creamy ground, while the under parts are of a purer white; the bill is bluish horn-colour, the legs and feet are yellowish. The young bird (in the rear) is ashy-brown above, while the under parts are marked with dark drop-shaped spots; the feet are more inclined to yellow than they are in the young Greenland Falcon. Length of the female 23 in., wing 16 in.; of the male 21 in., wing 14·5 in. There is great individual variation, and some examples show a greyish ground-colour which closely approaches that of the next species.

Among the Northern Falcons there is great individual variation, from the nestling stage onward. The first moult usually begins in April, when the bird is nearly a year old, and after that moult is completed—as it should be by October—there will be no further change in the pattern or character of the plumage. That is to say, the bird which then exhibits numerous dark markings will reproduce them at each successive moult to the end of its life, while a pale bird will remain so. The intensity of the markings may perhaps become fainter when the feathers are old and ready to be cast. These remarks equally apply to the Peregrine Falcon.

THE GYR-FALCON.

FALCO GYRFALCO, Linnæus.

Careful examination of the Northern Falcons has convinced me of the recognizable distinctness of the representative of the Iceland Falcon resident in Scandinavia, although at one time I was sceptical on this point, owing to want of experience as well as of material. The true *F. gyrfalco* of Linnæus is rather smaller in the head and body than the Icelander (though its tail is longer) and its wings are shorter in proportion, the grey of the ground-colour is of a more decidedly lavender tint; the crown and sides of the head are much darker, the lower cheek-patch or stripe being sometimes so strongly developed that the bird resembles a large Peregrine; while the flanks and under surface are very strongly barred.

In the collection of Mr. W. Borrer, of Cowfold, Sussex, there is a fine example of this species, shot at Mayfield, in January 1845,

during severe weather, when in the act of devouring a pigeon on the top of a wheat-stack. Mr. Ellman, its original owner, was for a long time under the impression that it was a light-coloured Peregrine, until Mr. Borrer convinced him that it belonged to the group of Northern Falcons; it was then assigned to *F. islandus*, and was subsequently recognized as *F. gyrfalco* by that great authority, the late Mr. J. H. Gurney (Borrer's B. Sussex, pp. 5, 6). I had the pleasure of examining this specimen on March 5th 1898; it is in adult plumage. An immature example, shot near Orford, Suffolk, in October 1867, has been assigned by Dr. R. B. Sharpe to this species.

The Gyr-Falcon inhabits Norway and Sweden, while, according to Dr. Menzbier, it is common and resident about the Varanger Fjord, and occasionally breeds in Russian Lapland; in fact Mr. H. J. Pearson found a nest containing two young birds on a cliff near Sviati Nos, on the Murman coast, in June 1895. It does not appear to migrate regularly or to any great extent, but from time to time birds referable to this species have been obtained further south in Russia than the district of St. Petersburg, as well as in Poland, Northern Germany and Holland.

The late Mr. John Wolley was, I believe, the first naturalist who gave, from his own observations (chiefly in West Finmark), any particulars of the breeding of this species, and for full details reference should be made to Prof. Newton's 'Ootheca Wolleyana,' Pt. i., pp. 87–98, pl. viii (eggs); also pl. C (birds). In the majority of cases the nests in which the eggs were deposited were on ledges of rocks, but sometimes in trees; subsequently, Prof. R. Collett found that in the portions of West Finmark which he visited, as well as in the Dovrefjeld, nests in trees were more often used. The eggs, up to 4 in number, resemble those of the Iceland Falcon, but are a trifle smaller.

The distinctive characters of the plumage of the adult have already been sufficiently described; the cere is yellow; the bill dark bluish; tarsi and toes yellow. Length: male 19·5 in., wing 14 in.; female 22 in., wing 15 in. The young birds can hardly be distinguished from those of the preceding species, except by experts.

All these Northern Falcons were formerly esteemed in Europe for hawking; but the experience of our modern falconers is that they become "soft" and sluggish in our climate.

THE PEREGRINE FALCON.

FALCO PEREGRÍNUS, Tunstall.

This fine species, *the* Falcon, *par excellence*, of those devoted to the ancient sport of hawking, is still fairly common throughout our islands, and considerable numbers of immature birds, technically known as Red or Passage-Hawks, annually occur between autumn and spring, especially on the eastern side. From several of its former haunts the Peregrine has been banished; but many of its eyries may still be found—though some of them are yearly robbed—from Kent to Cornwall, and more frequently along the coast of Wales; while in the mountainous districts of the north of England these are on inland-rocks as well as in sea-cliffs. In Scotland the Peregrine is widely distributed over the mainland and the islands, as far as the Shetlands. In suitable localities in Ireland it may be considered quite a common bird; and though, as a rule, each pair asserts its supremacy over a tolerably wide area, yet eyries exist there at no great distance apart.

To the Færoes the Peregrine is a rare visitor, and it has not been

obtained in Iceland; but it was found on Jan Mayen in April, and breeds regularly in Greenland up to about 70° N. lat., as well as at Cumberland Island, on the western side of Davis Strait. On the mainland of North America is found *F. anatum*, a closely-allied species with ruddier breast. In Europe, our bird is found from Scandinavia and the Northern Island of Novaya Zemlya (Lutke Land) down to the Mediterranean, but in the basin of that sea it is only known in winter: the resident race being the small *F. punicus*. Across Asia the Peregrine—allowing for sub-species—is found as far east as Kamchatka, the Kuril Islands, and Japan; in fact, under one form or another, it is met with almost all over the world.

This Falcon does not build a nest, but deposits its eggs, often early in April, on some overhung ledge of a cliff covered with a coating of earth, in which a hollow is scratched; or on an old nest of a Raven, Crow, Heron &c., in rocks or trees (usually pines). It also resorts to church-towers and steeples, while it lays its eggs on the bare ground in Lapland and Siberia. The 2–4 eggs vary from freckled orange-brown to rich brick-red: measurements 2 in. by 1·6. The same spot is resorted to year after year; and one in Connemara, known in 1684 to have been frequented from time immemorial, is still inhabited. Both sexes incubate; and should one of the birds be killed the survivor soon finds another mate. The young are driven away by their parents in August, and in autumn numbers have been captured on the heaths near Valkenswaard in Holland for hawking. The Peregrine varies its diet according to locality and individual taste, preying on ducks, waders, sea-fowl (especially Puffins), Pigeons, Grouse, Partridges, Lapwings, Hooded-Crows, Rooks, Choughs, Magpies, Jays, and even Kestrels; while it sometimes sweeps young rabbits off the side of a cliff. In many districts it is known as the 'Hunting-Hawk,' and, erroneously, as the 'Goshawk'; by falconers the male is called the Tiercel (corruptly Tassel), and the female the Falcon. The cry is a loud and repeated *hek, hek, hek*.

The adult has the crown, cheeks and stripe blackish; upper parts slate-grey (paler on the rump) with darker bars; under parts buffish-white to warm rufous, barred with a very variable amount of black; iris hazel-brown; bill bluish; cere and legs bright yellow. Length: male 15 in., wing 12·5 in.; female 18 in., wing 14 in. Young: upper feathers brown with buff margins; under parts ochreous, with dark brown streaks; cere and legs livid-grey.

For remarks upon the moulting of this and other species of Falcons, reference may be made to the last paragraph on p. 344.

THE HOBBY.

FALCO SUBBÚTEO, Linnæus.

The Hobby belongs to a group of Falcons (*Hypotriorchis* of many authors) characterized by remarkably long wings, comparatively short tail, and soft plumage. It arrives in England in small numbers about the middle or latter half of May, and has been found breeding in the southern counties as far west as Devon, especially in Hampshire; at one time with tolerable regularity in Essex; less frequently in Buckinghamshire, Cambridgeshire and Suffolk; not uncommonly in Oxfordshire, Berkshire, Norfolk and Lincolnshire; occasionally in the midlands, and exceptionally in Yorkshire; while in Cornwall, Wales, and the west it is seldom noticed. In Scotland, where it has occurred as far north as Sutherland, Caithness and the Shetlands, it is rare even on migration, and was not known to nest until, in August 1887, the late Sir Edward Newton discovered an adult and three young nailed up at Kinnaird House, Perthshire. In Ireland nine examples have been obtained, most of them in May or June. As a rule, the Hobby leaves the British Islands in September, but many occurrences during our 'winter' months are on record.

The Hobby visits Heligoland annually, and has been recorded as

far north as the Arctic circle in Lapland, while in Russia it is found throughout the wooded districts from 65° N. lat. down to the mouth of the Volga; but in no part of the Continent does it remain during the cold season. From Scandinavia southward it is generally distributed over Europe to the Mediterranean, though most numerous from Bulgaria eastward; it nests in the pine-woods in the extreme south of Spain, and visits the Canaries, Morocco, Algeria and Egypt, though rare in the last. Eastward from Asia Minor we trace it in summer across the wooded portions of Siberia to Kamchatka, and southward to Kashmir; while in winter it occurs in China, and in India down to Belgaum. In Africa it ranges as far south as Cape Colony. Its representative in the Indian region is *F. severus*, while in South Africa it is *F. cuvieri*.

The Hobby is a very late breeder, seldom having eggs before the early part of June, and often not till the end of that month. It does not make a nest for itself, but adds slightly to one built in a tree by a Crow, Magpie, or other bird. The eggs, usually 3 in England, but up to 5 in number on the Continent, are often yellowish-white, closely freckled with rufous, and can then be easily distinguished from those of the Kestrel; but sometimes they are suffused with reddish-brown and are therefore not so recognizable: measurements 1·6 by 1·25 in. Previous to laying, the female is said to sometimes brood on an empty nest or upon eggs of the Kestrel. I have known a Hobby, taken as a nestling in 1849, which lived for fifteen years. Dragonflies, cabbage-butterflies, cockchafers and other insects, form its principal prey in summer; but it also takes birds, especially Starlings; while it has been known to catch Swifts, and is the terror of Swallows and Martins. Larks are especially subject to its harassing attacks in autumn, when it leaves the woodlands and frequents the more open country; it will also accompany sportsmen and seize Quails in front of them.

The adult has the upper parts slate-grey, nearly black on the head, with a black moustache-like streak and slightly rufous nape; cheeks and throat white; under parts buffish-white, broadly striped with black; vent and thighs rust-red; cere, orbits and legs yellow, iris dark brown. The sexes are alike in plumage, but the female is larger, though less vivid in colour. Length: male 12 in., wing 10 in.; female 14 in., wing 11·25 in. The young bird has the crown of the head mottled with buff, and a decided tinge of that colour on the cheeks and under parts; upper feathers brown, edged with ochreous-white; tail with a broad pale tip; vent and thighs only pale rufous.

THE MERLIN.

FALCO ÆSALON, Tunstall.

The Merlin, the least of the indigenous British Falcons, has not been proved to breed on the moorlands of Cornwall, Devon, and other counties in the south of England, but from Pembrokeshire northward its nest has often been found in many parts of Wales. In and beyond Derbyshire the Merlin is distributed, in suitable localities, up to the Shetlands; while in Ireland it is tolerably frequent in the mountainous districts, as well as in some of the great red bogs of the central plain (Ussher). In autumn it descends to the low grounds, bays and coasts, where Snipe, Dunlins and other waders, with small birds, generally afford abundant prey; while during the winter it is generally distributed throughout the British Islands, though the examples then obtained are chiefly immature.

The Merlin is a resident in the Færoes, but only a summer-visitor to Iceland; an example has, however, been taken at sea not far from the coast of Greenland, and one actually at Cape Farewell

in May 1875. In North America it is represented by *F. columbarius*, with fewer bars on the tail. In Scandinavia the Merlin is common in the northern districts from April to October, and it has been observed as far as Yugor Strait, 69° N. lat.; while southward it nests in Central Russia, on the high ground of Germany, in the Alpine districts of Central Europe, and in the Pyrenees. It is the commonest of the 'passage-hawks' on Heligoland, and elsewhere it is well known on migration; the proportion of adults to immature birds being unusually great in the basin of the Mediterranean. During the cold season it inhabits North Africa and abounds in Egypt, its migrations extending to Nubia and Sennaar. Eastward, it frequents the northern portions of Asia as far as Ussuria in summer, wintering in Northern India and China.

In the British Islands the nesting-place is usually a mere hollow scratched in the moorland ground, often on the side of a bank, and it is but seldom that even a few twigs of heather are found as a border. In the Færoes, Norway, and also in the Pyrenees, ledges of precipitous cliffs are resorted to; while in Scandinavia (frequently), in Scotland (occasionally), and perhaps in England oftener than is supposed, an old nest of some other species, built in a tree, is utilized. In the Museum at Oxford may be seen a hen bird with her eggs and the old nest of a Heron or a Crow in which these were deposited, from a cliff near Milford Haven. The 4–6 eggs, laid in May, are deep reddish-brown or purplish-red, without gloss: measurements 1·5 by 1·2 in. The Merlin preys chiefly on Dunlins, Meadow-Pipits, Thrushes, Larks, &c.; while it has been seen in pursuit of a Swallow, whose rapid evolutions it followed as if moved by the same impulse. By falconers it was, and still is, used for flying at Larks; in swiftness, however, it does not approach the Hobby, or even the wild Peregrine. Owing to its habit of perching on rocks, it is known in some parts as the 'Stone Falcon.'

Adult male: crown and mantle slate-colour, and nape rufous, with black shaft-streaks; throat white, and under parts buffish, striped with dark brown; tail bluish-grey, broadly banded with black near the end and tipped with white; cere, legs and feet yellow. Length 11 in.; wing 7·8 in. Female: upper parts dark liver-brown; tail-feathers brown, crossed with five narrow paler bands and tipped with white; nape, cheeks and under parts dull white, streaked with brown. Length 12·5 in.; wing 8·6 in. Old females sometimes attain the male plumage. The young resemble the female, but are more rufous in tint.

THE RED-FOOTED FALCON.

FALCO VESPERTÍNUS, Linnæus.

This small species (sometimes misnamed the Orange-legged Hobby, though it is more nearly akin to the Kestrel) is merely a summer-visitor to Europe, in the eastern portions of which it has an extensive northerly range, though in the west its appearance is irregular. Its appearance in the British Islands was first noticed in Yorkshire in April and in Norfolk in May of 1830, and subsequently about thirty specimens have been obtained. Most of these have been taken in the eastern and southern counties, but examples have been recorded from Cornwall, Pembrokeshire, Denbighshire, Salop and Lancashire ; while Yorkshire, Durham and Northumberland have been visited. In Scotland, one was shot in Aberdeenshire in May 1866, and another in May 1897, one in Fifeshire in September 1880, and one near Jedburgh in June 1888. In Ireland, a bird now in the Dublin Museum was taken in co. Wicklow during the summer of 1832. Most of the authenticated occurrences have been in spring or summer, with a few in autumn, and exceptional instances in the winter months.

The Red-footed Falcon seldom visits Heligoland. It has been

found in the south of Sweden, and as far north as lat. 65° in Finland; but Dr. Menzbier thinks that it has only extended its migration to the northern provinces of Russia within the last fifty years. During the same period a gradual diminution in its numbers —as a breeding species—has taken place in the south, especially near Odessa, where immense flocks used to arrive early in April and afterwards disperse, reuniting in autumn previous to departure. On the steppes of Orenburg this decrease has partially coincided with remarkable immigrations of the Lesser Kestrel, previously a very rare bird there. The Red-footed Falcon breeds in Siberia as far as Yeneseisk and even Lake Baikal; but eastward the representative is *F. amurensis* (the adult male of which is white beneath the wing instead of grey), and this visits India. On migration our species is found in Asia Minor and South-eastern Europe; while in the Danubian provinces and Hungary it breeds in considerable numbers; but westward it is only a straggler, and in Spain it is rare, though it has visited the Canaries in spring. In winter it is found in Africa down to Damara Land.

In May or June this species appropriates the old nest of a Crow, Magpie or Rook, in which it deposits 4–6 eggs, of a yellower red than those of the Kestrel and smaller in size: measurements 1·45 by 1·15 in. Five or six nests so occupied may be found in one tree; and in its general habits this Falcon is remarkably gregarious, numbers roosting close together. The food consists chiefly of dragonflies, large moths, beetles, grasshoppers and other insects; also of lizards, shrews and field-mice. The flight resembles that of the Kestrel, and lacks the dash of that of the Hobby; the note is a clear, shrill *ki*, often repeated, especially towards evening, at which time the bird usually seeks its prey.

The adult male has the head, shoulders, breast and tail nearly black; mantle and under wing-coverts lead-grey; quills paler, with black shafts; thighs, vent and under tail-coverts rich chestnut; bill dark horn-colour; cere, orbits, legs and feet reddish; claws nearly white. Length 11·5; wing 9·7 in. The female has the head, nape and under wing-coverts chiefly chestnut; mantle and tail slate-grey, with darker bars; principal quills brownish, barred on the inner webs with buffish-white; length 12 in.; wing 10 in. The young bird has the throat and forehead whitish; crown pale chestnut; upper surface tinged with ruddy brown; tail-feathers distinctly barred, and the bars on the primaries tending to coalesce. The male soon begins to assume his dark plumage.

THE KESTREL.

FALCO TINNÚNCULUS, Linnæus.

The Kestrel—also familiarly known as the Wind-hover, from its habit of hanging almost motionless in air against the wind—is the most abundant of the British birds of prey; and would be still more numerous than it is, but for its persecution by persons who ought to be aware that it feeds principally upon rodents, and is, therefore, one of the best friends of the agriculturist. It is generally distributed throughout the United Kingdom; but in Scotland, where its harmlessness and utility are now recognized by the more intelligent gamekeepers, it migrates, as a rule, from the northern districts in winter; at which season its numbers in England are further increased by visitors from the Continent, chiefly on passage.

To the Færoes the Kestrel is only a wanderer, and it has not

been obtained in Iceland; but on September 27th 1887 a female was shot near Nantucket, Massachusetts, and examined in the flesh by Mr. C. B. Cory. Its eggs have been found even as far north as lat. 68° in Scandinavia, but there, and in Finland, it is not plentiful near the limits of its range, while in Russia its occurrence at Archangel is accidental. Throughout the rest of Europe, however, it is common, migrating more or less from the northern districts in winter, but residing during the entire year in the south. Nowhere is it more abundant than in Spain, and swarms may be seen, especially towards sunset, circling round the lofty church-towers of Córdova and Seville; while above the great plains watered by the Guadalquivir many hundreds are often visible at the same moment, alternately hovering and dropping down on their prey, which there consists principally of beetles. The Azores, Madeira, Canaries, and Northern Africa to Abyssinia, are inhabited by a slightly smaller and darker race; while southward, the Kestrel ranges beyond the Equator. In Asia it reaches from the Mediterranean to the confines of Eastern Siberia, and down to the Himalayas and Burma in summer; while in winter it pervades the whole Indian Empire. In America the representative species is *F. sparverius*, an example of which is said, though on very incomplete evidence, to have been shot in Yorkshire in May 1883.

The Kestrel either makes use of the former nest of a Crow, Magpie, Wood-Pigeon &c., or else deposits its eggs in cavities in cliffs, chalk-pits, quarries, buildings and hollow trees, and exceptionally on the ground. These, often laid early in April in England, and 4–6 in number, are usually brownish-red, but sometimes have a mottled yellowish-white ground-colour: measurements 1·6 by 1·25 in. In northern countries the Kestrel preys chiefly on mice, birds being seldom taken; to the southward it feeds largely on beetles, grasshoppers and other insects. Its graceful flight, as well as its shrill cry *kee*, *kee*, *kee*, are familiar.

The adult male has the head, neck, lower back and tail bluish-grey, the latter broadly banded subterminally with black and tipped with white; back pale chestnut, with small black spots; under parts buff, streaked and spotted with black; cere, legs and feet yellow. Length 14 in.; wing 9·5 in. The female—which is not appreciably larger—has the upper parts rufous, barred with black; on the tail several narrow bands of black, with a broad one near the tip. Very old hens partially assume the male plumage, and have more or less blue on the rump and tail. The young resemble the female, but are somewhat lighter in colour.

THE LESSER KESTREL.

FALCO CÉNCHRIS, Naumann.

The claim of this species to a place in the British list was formerly received with suspicion, but no fewer than five occurrences are now (1898) authenticated. An example in the York Museum was shot in the middle of November 1867, by Mr. John Harrison of Wilstrop Hall, who noticed the bird flying about his farm; in May 1877 an adult male, with one leg injured, was captured alive near Dover, and presented by Mr. E. P. Robinson to the Museum of that town; on February 20th 1891 an adult male was shot near Dublin; early in March of the same year another adult male was obtained near Tresco, Scilly Islands; and lastly a female is recorded by Mr. G. Sim as having been shot at Boynalie, Aberdeenshire, on October 25th 1897. It may be added that two examples, which had been captured in the Mediterranean, escaped from the s.s. 'Irthington': one of them on April 27th 1894, near Blyth, and the other on May 5th, near Belfast (Ibis 1894, p. 451).

It will not appear so remarkable that the Lesser Kestrel should occasionally visit our islands, when we consider that it is a regular

migrant to Europe, has been obtained as far north as Calvados in Normandy, Anhalt in Germany, and has probably occurred on Heligoland. According to Taczanowski, it is abundant during the breeding-season in the southern provinces of Poland, but does not reach Warsaw. To Savoy, and even to the south of France, it is only an occasional visitor, and statements respecting its breeding on this side of the Pyrenees require confirmation; while it is not common on the mainland of Italy, though abundant and partially resident in Sicily and some other islands of the Mediterranean. In the southern parts of the Spanish Peninsula it is very numerous, especially in Andalucía, where a few remain through the winter, though the majority arrive in February and leave early in October. In Greece and the south-east of Europe it is common in summer, and since 1877 thousands have annually invaded the Orenburg district, where, either as a consequence or a coincidence, the Red-footed Falcon has become rarer. Eastward it is found as far as Bokhara; while an allied species, *F. pekinensis*, breeds in China and winters in India. Asia Minor, Palestine, Egypt and North Africa are regularly visited by the Lesser Kestrel in summer, while its migrations in the cold season extend to Cape Colony.

No nest is built, but the eggs are deposited in holes in cliffs, banks, walls or roofs of inhabited buildings as well as in ruined towers, churches &c., and sometimes old nests of other birds in trees. In Andalucía, Col. Irby found eggs as early as April 26th, and Dr. Krüper has taken them by the end of that month in Greece. The complement is 4–5, exceptionally 7; the ground-colour is usually yellowish-white, mottled with much paler reddish-brown than are eggs of the Common Kestrel: measurements 1·4 by 1·1 in. The food consists of insects, especially cockchafers and other beetles, and grasshoppers; the stairs and other approaches to the towers frequented by this and the larger species being often covered with a deep accumulation of wing-cases and ejected pellets of indigestible matter; small lizards are also eaten. The cry has been syllabled as *vev-aí*, and also as *psche*, *psch*, *psche*, *wsche*.

The Lesser Kestrel much resembles our common species, but is smaller in size and has *white claws*. The male has no black spots on the back, and the innermost secondaries are slate-grey instead of chestnut. Length 12 in.; wing 9·1 in. The female can only be distinguished from the Common Kestrel by her smaller size and her white claws: length 12·25 in.; wing 9·2 in.

THE OSPREY.

PANDION HALIAËTUS (Linnæus).

The Osprey is at times not uncommon on the sea-shores and inland waters of our islands, especially in autumn: for instance no fewer than ten were recorded between the Tyne and the Thames in the months of September and October 1881; but the majority of these visitors are immature birds, some of which would doubtless remain on our coasts, if unmolested, until the following May. Estuaries are favourite haunts; and in those of Sussex and Hampshire the bird is known as the Mullet-Hawk, owing to its partiality for that fish. Tradition states that it formerly bred on the south coast of England, and the Rev. H. A. Macpherson believes that it did so in Lakeland until the end of the last century. In Scotland, there were at least two eyries in Galloway up to about 1860, but at the present day those which are known to exist are confined to the Highlands, where their safety depends upon protection; while to the Hebrides, Orkneys and Shetlands, the Osprey is only an accidental visitor. Mr. R. J. Ussher informs me that he has fifty

records for Ireland, where the bird occurs chiefly on the autumn migration or in winter; but it has never been known to breed in that island, though many of the inland waters appear suitable.

This species does not occur in Iceland or Greenland, but it is very abundant in North America; while it is generally distributed over the Old World as far south as Australia, so that it may almost be termed cosmopolitan. In Europe it breeds—either in forests near lakes, or on sea-cliffs—from Lapland to Spain, and eastward to Greece and Southern Russia; as well as from the north coast of Africa down to the Red Sea on the east side, and the Canaries and Cape Verde Islands on the west; likewise in suitable localities throughout Asia. Its distribution is, in fact, restricted by two conditions only: the bird must be in the vicinity of waters inhabited by fish which swim sufficiently near the surface to supply it with food, and the proximity of mankind is a decided objection.

The nest is a bulky structure of sticks, sometimes mixed with turf; and on the top is a small cavity lined with moss for the reception of the eggs. These, 2–3 in number, are often very beautiful, having the ground-colour of white or buff, with rich blotches of chestnut-red or claret-colour and underlying blurs of purplish-grey: average measurements 2·5 by 1·8 in. In the northern hemisphere they are usually laid towards the end of April or early in May. In wooded districts trees are generally preferred, and Booth stated that all the nests he had recently visited in the Highlands were in Scotch-firs; but old buildings and rocky islets in lochs are also utilized. In North America the Osprey is gregarious, and as many as three hundred pairs have been seen nesting on one small island. Until taught caution by molestation it is a very unsuspicious bird, as every one must be aware who has read St. John's 'Tour in Sutherland.' The food consists of fish, upon which the bird plunges, often from a considerable height, and bears its prey away in its claws; these are remarkably curved and sharp, the outer toe being reversible and the soles of the feet very rough.

The adult male has the head and nape white, streaked with brown; upper plumage umber with a purplish tinge; under parts white, with a band of brown spots across the breast; cere, legs, and toes greenish-blue. Length 22 in.; wing 19 in. The female is larger, and more marked with brown on the breast; length 24 in.; wing 21 in. The young bird has pale edges to the upper feathers and the tail distinctly barred; the adult plumage is not attained until the third or fourth year. The irides are yellow in young and old.

THE COMMON CORMORANT.

PHALACRÓCORAX CÁRBO (Linnæus).

The Great, or Black Cormorant, as it is sometimes called to distinguish it from the smaller Green Cormorant or Shag, is common and generally distributed along the greater part of the British coast-line, and until 1825–27 some 50 or 60 pairs used to nest on the trees at Fritton, Suffolk. From Flamborough northward to Caithness it is more abundant, as a rule, than the Shag; though in the Shetlands, Orkneys, Hebrides, and along the western side of Scotland, it is usually in a minority; while in Wales it is again in the ascendant as far as Pembrokeshire, where, as in the south-west of England, the Shag predominates. It is widely distributed in Ireland. Apart from the sea-coast, the Cormorant not infrequently nests inland: notably on the bold rock near Towyn known as Craig-y-deryn, and on several lakes in Ireland, sometimes breeding in company with Herons on trees.

This species is found in the Færoes, Iceland, and Greenland up to about 70° N. lat.; while it is generally distributed over Europe, and breeding-colonies are to be found in situations widely different in character, such as ledges of cliffs, the swampy meres of Holland, and the inundated forests of the valley of the Danube. It is found all over Asia—except in the high north—and usually nests on trees; while in Australia and New Zealand the representative is a doubtfully distinct form, *P. novæ-hollandiæ*. Our bird is said to have occurred in South Africa, and is common in the north of that continent. In America it inhabits the Atlantic coast, from Hudson Bay to New Jersey, but it has not yet been noticed on the Pacific.

The nest is a large structure composed of sticks and grass or water-plants, mixed, when near the coast, with masses of sea-weed; the eggs, laid in this country in the latter half of April or in May, and 3–5 in number, are oblong, rough in texture, and have a pale blue under-shell with a chalky-white coating: measurements 2·75 by 1·6 in. Many birds usually congregate at the breeding-places, which, as already indicated, are to be found on high cliffs, low islets, bushes or trees. In 1882 a pair hatched two young in the Zoological Society Gardens, Regent's Park, and it was observed that after the male had been fed and retained the fish for about an hour, he mounted the side of the nest and opened his capacious mouth, which the young bird entered as far as its outstretched wings would allow, and helped itself to the macerated food in the old one's crop. The parents had been trained by Capt. F. H. Salvin for catching fish: a practice pursued as a sport in this country since the time of the Stuart sovereigns; while, as a business, it has been followed in China and Japan from time immemorial. The nestlings are blind for a fortnight or more after being hatched.

The adult has the upper head and neck black, with many hair-like white feathers, and those on the occiput lengthen and form a crest in spring; throat white; gular pouch yellow; mantle bronze-brown and black; quills, and the tail of *fourteen* feathers, black; under parts rich bluish-black, except a white patch on the thigh, which is assumed very early in spring and lost in summer; irides emerald-green. The sexes are alike in plumage, but the male is larger, brighter in colour, and has the longer crest. Length about 36 in.; wing 14·5 in. The young bird is dark brown above, dull white mottled with pale wood-brown below; irides brown the first year, then pale bluish-green, changing to emerald at the end of the second year. There are records of varieties tending to albinism, and even of pure white birds with light-coloured bills and feet.

THE SHAG, OR GREEN CORMORANT.

PHALACRÓCORAX GRÁCULUS (Linnæus).

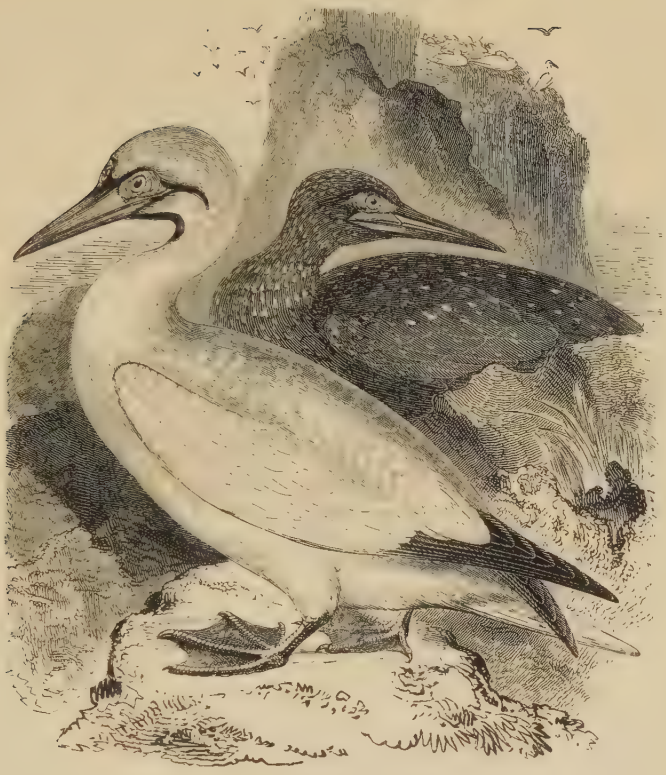
The Shag, also known as the Scart, Scarf, or Crested Cormorant, may be distinguished from the preceding species by its smaller size, and, when adult, by its prevailing green colour. The illustration is taken from a bird in autumn plumage; the crest, which is assumed very early in spring and only retained for a few months, is tuft-shaped and curved forward. The young are not so easily recognized on the wing, but may be distinguished on examination by the tail-feathers, which, in this species, are only *twelve* in number. The Shag is essentially marine, and seldom wanders inland, or to fresh water; its favourite haunts being rugged coasts, especially those honeycombed with caves, or shores margined with fallen rocks and large boulders, amongst which it often makes its nest. Such situations are frequent on the west coast of Scotland and its islands up to the Shetlands, and to a great extent along Ireland, as well as in South Wales, and in England from the Isle of Wight westward; and in these the Shag is, on the whole, more abundant than the Cormorant. By fishermen and seaside folk, however, the trivial names are frequently interchanged, while the term 'Diver' is sometimes applied to both birds, and these facts should be borne in mind.

Westward of Iceland the Shag has not yet been found, and, although it is common in the Færoes and on the coast of Norway, as well as on the islands along the Murman coast of Russian Lapland, it is scarcely known to enter the Baltic, and is rare on the German shores of the North Sea. It breeds in the Channel Islands, and along the Atlantic coasts of France, Spain, Portugal, and Morocco; while a somewhat brighter form, found throughout the Mediterranean and known as *P. desmaresti*, does not appear to me to be specifically distinct.

The nest, formed of sea-weed and grass matted and plastered together, and emitting a horribly fœtid smell, is often placed in cliffs, or among fallen rocks and large boulders; but frequently it is on a ledge near the roof of a cave, and so far in that the sitting bird can scarcely be discerned amidst the gloom and spray-mist. The 3–4 eggs—like those of the Cormorant in colour and texture, but smaller, and more variable in shape—are laid in April on our south-west coasts, and Mr. Ussher has found young birds as early as the 14th of May; but in the north incubation is later. The nestlings, at first bare and purplish-black in colour, are afterwards partially covered with down, which is of a browner black than that of the young Cormorant. The mode of feeding is identical in the two species. The Shag lives principally upon sea-fish, for which it dives; the action beginning with a spring out of the water; and it has the power of descending to a considerable depth, for it has been caught in a crab-pot fixed at twenty fathoms below the surface. The note is *kroak, kraik, kroak.*

The adult has the bill black, the base of the under mandible and inside of the mouth chrome-yellow, and the naked skin about the gape black, thickly studded with small round yellow spots; irides green; the forehead bears a crest which curves forward, assumed in January and lost by the beginning of May; crown, neck, and under parts rich dark green with purple and bronze reflections; feathers of the mantle dark green with blackish margins; quills and the *twelve* tail-feathers black, as are also the legs, toes, and their membranes. Length 27 in.; wing 10·75 in. The sexes are alike in plumage, but the male is the larger. The young bird has a very slender bill, with yellow lower mandible; the upper parts brown, tinged with green; the under surface brownish-ash, mottled with brown.

A male example of the American Darter, *Plotus anhinga*, is said to have been shot near Poole, Dorset, in June 1851, as recorded by the Rev. A. C. Smith (Zool. [1852] p. 3601 fig. and p. 3654).



THE GANNET.

Súla bassána (Linnæus).

The Gannet, or Solan Goose, is a resident within British waters, though its abundance in different localities varies with the season of the year. On Lundy Island, its ancient and only breeding-place in England, it is now almost, if not quite, exterminated ; but in Wales there is a colony on Grassholm, off Pembrokeshire. In Scotland there are well-known stations on the Bass Rock on the east, and Ailsa Craig on the west side ; also at two stacks off Boreray in the St. Kilda group ; at Sulisgeir, about 35 miles north of the Butt of Lewis ; and at Suliskerry, nearly 40 miles west of Stromness, which is frequented by an unusually large number of immature birds. In Ireland there is a colony on the Bull Rock, off Dursey Head, co. Cork, and a larger and increasing one on the Little Skellig.

In the Færoes this species breeds on Myggenæs, the most western island of the group; while in Iceland it has several colonies. Thousands nest on the Magdalen Islands, as well as on some other rocks in the Gulf of St. Lawrence, and Kumlien says that he saw the bird up to 65° N. In winter the Gannet ranges over the Atlantic, down to North Africa, the Canaries and Madeira on this side, and the Gulf of Mexico on the other; but it seldom enters the Baltic or goes far up the Mediterranean, though after stormy weather it has occasionally been taken at a considerable distance inland.

The nest is a mass of sea-weed and grass, on which is deposited a single egg; this (like that of the Cormorant) has a pale blue under-shell overlaid with a chalky-white coating, but soon becomes soiled: measurements 3·25 by 1·9 in. When unmolested, Gannets are very tame during incubation, and will allow themselves to be stroked by the hand without any sign of impatience except a low guttural *grog, grog*; but at times they are very vociferous, and as they are continually interfering with each other, or taking advantage of the absence of their neighbours to pilfer the materials of their nests, a constant noise is kept up, which may be syllabled as *carra, crac, cra*. The immense numbers which throng Stack-an-Armin and Stack Lii, off Boreray, form a sight never to be forgotten. The food consists of surface-swimming fish, such as herrings, pilchards, sprats and anchovies, upon which the Gannet plunges perpendicularly with closed wings from a considerable height; the birds fish in company, and many become entangled at times in the meshes of the fishermen's long sea-nets. In some districts of Scotland the young, collected in August, are plucked, cleaned, half-roasted, and sold for food, the fat is boiled down, and the feathers are used for stuffing beds.

The adult has the crown and nape buff-colour; the rest of the plumage white, except the primaries, which are black. In the bird of the first year, the under plumage is mottled with dusky-ash and buff, while the upper parts are blackish-brown flecked with white; in each successive year the dark markings diminish until the sixth, when the adult dress is attained. Length 34 in.; wing 19 in. The nestling is at first naked and black, but is afterwards covered with down, which is most persistent on the head and hind neck, giving the bird the appearance of wearing a long wig.

A Tropic-bird, *Phaethon aethereus*, is said to have been found dead in Herefordshire more than forty years ago (J. H. Gurney, Tr. Norfolk Soc. v. p. 659).

THE COMMON HERON.

ÁRDEA CINÉREA, Linnæus.

This bird is no longer protected as in the days of Falconry, but it is still generally distributed throughout the British Islands; and in England the number of its colonies has suffered no diminution, though many of them are seriously reduced in size as compared with former times. In Scotland there never were many large heronries, but small ones are scattered over the greater part of the mainland as well as some of the outlying islands. The latter remark applies to Ireland, where, however, there are also some important assemblages in trees in cos. Cork, Waterford, Dublin, Down, Donegal, Mayo and Galway.

The Heron sometimes visits the Færoes and Iceland, and a young bird was picked up dead in South Greenland in 1856. On the coast of Norway it ranges to 68° N. lat., though it does not reach beyond 57° in Sweden and Russia; while southward it is found, in suitable localities, over the greater part of Europe, and considerable numbers breed in colonies in the marshes of Northern and Central Italy, the valley of the Danube, and Southern Russia. In France there is one

very large heronry at Écury-le-grand, near Champigneul, in Marne; while scattered pairs are found in many districts. Migrants bearing the labels of the Loo Hawking Club, Holland, have been shot from time to time near Perpignan. To the Spanish Peninsula, the Azores, Madeira, the Canaries, the Mediterranean basin, Africa as far as Cape Colony, Ascension Island, the islands of the Indian Ocean, and Australia, the Heron is either a winter-visitor or a wanderer; but it breeds throughout Asia, from about 60° N. down to Ceylon.

In January, if the season is very mild in England, but as a rule in February, Herons resort to their breeding-places, and these are often occupied for years in succession; while, like the Rooks, in whose vicinity they often build, they usually nest in company. According to circumstances they avail themselves of high trees, precipitous sea-cliffs, crags covered with ivy and shrubs, bare hill-sides, the walls of ruins, the level ground, low bushes, or reeds and bull-rushes. The nest is flat, rather broad, and formed of sticks, with a lining of small twigs, roots and dry grass; the 3–4 eggs are uniform bluish-green: measurements 2·5 by 1·7 in. Incubation lasts 25–26 days (W. Evans); and a second clutch of eggs is sometimes laid while the first brood is still in the nest. Heronries are occupied from spring to August, and are occasionally visited in the winter, but except in the breeding-season the bird is often solitary and shy. The food consists of reptiles, molluscs, crustaceans, worms, insects, small mammals—such as water-rats and field-mice, and still more largely of eels, pike, flounders and other coarse fish, but trout and the young of water-fowl are not despised. Young Herons are helpless for some time after they are hatched; when fledged they are good eating, and were formerly esteemed for the table. The alarm-note is a loud *frank*, *frank*, which is especially startling to other birds, but at the nest it is a prolonged *kronk* or *kraak*. When flying, this species is easily recognized by the slow flapping of its rounded wings.

The adult male has the crest bluish-black; upper parts chiefly slate-grey; forehead, cheeks and neck white, the last being streaked with dark bluish-grey and terminating in long white feathers; under parts greyish-white; bill yellow. Length 36 in.; wing 17·25 in. The female is smaller, and her colours are less bright, while the plumes are shorter, as they are also in the young birds; in the latter the under parts are ash-colour, and there are no long feathers at the bottom of the neck. Varieties are sometimes obtained.

The members of this family have the breast and lower flanks furnished with well-developed powdery tufts of decomposed feathers, the use of which is not known.

THE PURPLE HERON.

ARDEA PURPÚREA, Linnæus.

Although the Purple Heron is comparatively abundant on the neighbouring shores of the Continent, it is only of irregular occurrence on the east coast of England, and is even less frequent in the south, from Sussex to the Scilly Islands. In Wales and along the west side it has seldom been noticed; while the only example on record for Ireland is one killed at Carrickmacross in 1834, now in the Warren collection at the Dublin Museum. In Scotland this species is said to have occurred in Caithness and Aberdeenshire more than forty years ago, and Mr. W. Evans has a young bird shot near Prestonpans, East Lothian, in October 1872. Altogether about fifty specimens have been obtained in the British Islands, the majority of these being in immature plumage.

The Purple Heron is only a wanderer to the south of Scandinavia, Heligoland (once), Northern Germany and Poland. Its nesting-places nearest to our shores are in Holland, where it is still by no

means uncommon, though lately interfered with by drainage; but, while principally a visitor on passage to Belgium, it breeds in considerable numbers in the marshy districts of the Loire, and in some parts of the south and east of France. In the Spanish Peninsula it nests freely, as it does also from Central Germany to the swampy parts of Southern Russia; migrating, as a rule, in the cold season from all the countries on the northern side of the Mediterranean. It is found in Madeira, the Canaries (rarely) and Cape Verde Islands, as well as in Northern Africa, while in Abyssinia it has been obtained at an elevation of 9,000 ft., and it inhabits suitable localities down to Cape Colony and Madagascar. In Asia, to the east of about long. 50°, it is represented by *A. manillensis*, which has no streaks on the fore neck.

Its breeding-places are usually difficult of access, being situated in flooded swamps, or in the midst of dense masses of reeds. Mr. Philip Crowley describes the nests at the Naarden Meer, near Amsterdam, as placed about three feet above the water, and made by bending down twelve or fifteen reeds to form a platform, on which some smaller pieces were arranged crosswise, and this agrees with my experience in Spain. The bluish-green eggs, usually 3 in number, are smaller than those of the Common Heron: measurements 2·2 by 1·5 in. In its habits the Purple Heron is shy, and crepuscular or even nocturnal in its time of feeding. From the thinness of the long snake-like neck, the birds are with difficulty distinguished when they are standing in a reed-margined lake, nearly up to the belly in water; for their bodies, in the shimmering sunlight, exactly resemble tussocks of rushes. The note is more guttural than that of its congener. The food consists of small mammals, reptiles, fishes (especially eels) and aquatic insects.

The adult has the crown and long plumes glossy purplish-black; cheeks and sides of the neck fawn-colour, streaked with bluish-black; back and wing-coverts dark slate-grey; elongated filamentous dorsal feathers chestnut; tail grey; neck reddish-buff with a line of black down each side, terminating in a mass of chestnut, grey and black elongated feathers; under wing-coverts chestnut; breast rich maroon-red; thighs rufous; bill yellow; toes very long. Length about 33 in. (bill 6 in.); wing 14·25. The sexes are alike in plumage, but the male is the larger. In winter the long plumes are absent. In the young, until the second moult, the occipital crest, as well as the elongated feathers at the base of the neck and on the scapulars are absent; the general colour above is rust-red, and the under parts are brownish-white.

THE GREAT WHITE HERON.

ARDEA ALBA, Linnæus.

The Great White Heron is a rare visitor to Great Britain, and it would appear from Mr. J. H. Gurney's careful revision (Tr. Norfolk Soc. v. p. 186) that out of thirty-two "records," only five examples are authenticated or available for examination. Two of these were obtained in Yorkshire, and one of them is in the Museum of the county city; one, killed in East Lothian on June 9th 1840, is in the collection of the Earl of Haddington at Tyninghame House; one (with the long back-plumes) shot on Thorney Fen, Cambridgeshire, is now in the possession of Col. Charles Isham Strong, of Thorpe Hall, Peterborough; and one, killed at Loch Katrine, Scotland, in May 1881, and also having the dorsal-train fully developed, is in the Edinburgh Museum. Others are said to have

been observed, but some of them were probably Spoonbills; while several records are unworthy of serious consideration.

The Great White Heron occasionally visits the south of Sweden, and the north-east of Prussia, but is of very rare occurrence in Poland; although near Glogau, in Silesia, a pair was found breeding by A. von Homeyer in 1863. Over a great part of the area drained by the Danube and its tributaries it was formerly plentiful in summer, but owing to persecution for the sake of its plumes, its numbers have been much reduced of late years; in the Black Sea district, however, and the south of Russia, it is still common. Throughout the basin of the Mediterranean and in the marshy parts of Italy it is not infrequent, especially in winter; it visits the south (and exceptionally the north) of France, and the east of Spain; and sometimes wanders to the Azores. It inhabits the warmer portions of Asia as far as Burma, but in the Indian region a smaller species, *A. intermedia*, predominates. In North Africa it occurs principally in winter, and has been found, like the Purple Heron, on the high table-lands of Abyssinia; while it has been obtained as far south as the Orange Free State. Its representative from Japan to Australia and New Zealand has the bill yellow throughout the year; whereas our bird has the bill black in summer, and yellow at other times. In America a closely-allied species, *A. egretta*, has the bill yellow and the tarsi and tibiæ black at all seasons.

The nest found by Homeyer was slightly built and placed in an old fir-tree, and three recently hatched birds were found in it on June 28th. In Northern India and Burma the nests are built from June to August in half-submerged groves, but in the Carnatic and Ceylon, this and all Herons breed from December to February (Blanford). The 3–4 eggs are pale greenish-blue: measurements 2·5 by 1·5 in. The food consists of small fish, reptiles, molluscs and aquatic insects.

The adult has the whole plumage white; the feathers at the bottom and sides of the neck in front fairly developed; dorsal train very long and filamentous in spring, but absent in autumn; bill black during the breeding-season, but afterwards yellow; lores and orbits pale green; irides yellow; tarsi and toes blackish; the tibiæ being paler. Length of the European bird to end of tail about 35 in. (bill 6 in.); wing 17 in. The males are the larger, and have the plumes more developed. In the young bird the bill is yellowish, the legs are paler, and the elongated feathers are not acquired until the second spring.

THE LITTLE EGRET.

ARDEA GARZÉTTA, Linnæus.

The Little Egret has a more southern habitat than the preceding species, and, as might be expected, its visits to the British Islands are very uncommon. When subjected to critical examination almost all the records of its occurrence are more or less unsatisfactory; and, as far as I can learn, the only example about which there can be no doubt, is an adult examined and recorded by the late Mr. J. Gatcombe, killed at Countess Weir, on the Exe, on June 3rd 1870, and belonging to Mr. E. H. Harbottle, of Topsham, near Exeter. It is not improbable, however, that one has been obtained in Sussex; while the late Lord Lilford (B. Northamptonsh. ii. p. 118) adduced some evidence that two were shot near Whittlesea about 1849. There is no specimen in existence to prove Thompson's assertion that the Little Egret has visited Ireland on three occasions.

This species has not been found to the north of the Baltic, and it seldom wanders to Germany, Holland, or the north of France, though not uncommon in the southern and eastern portions of the

latter. It is tolerably abundant in suitable localities in the Spanish Peninsula, Italy, Sicily, Sardinia, Cyprus, and generally throughout the Mediterranean region. The northern limit of its breeding-range appears to be in the wooded swamps of Slavonia, where Mr. W. E. Clarke found it nesting towards the end of May 1883 on the Obedska 'bara,' a marsh on the river Save, not far from Semlin. In the same year Messrs. Seebohm and Young found it breeding in colonies on the Lower Danube; and it is common during the summer in Turkey and Southern Russia. Across Asia it is distributed as far east as China and Japan; in India and Ceylon it is resident; it visits the Philippines and Malayasia; and a near ally ranges from Java to Australia. To the west, it occurs in the Azores and Canaries, and breeds in the Cape Verde Islands; while in Africa it is found as far as Cape Colony. Its representative in the warmer districts of America is *A. candidissima*, distinguishable by the large bunch of occipital feathers and by the yellow basal portion of the bill.

The nests of the Little Egret are usually placed in bushes and trees, in company with those of other swamp-loving species; the material consisting of sticks and a few reeds, on which are deposited the 3–6 eggs, of a pale bluish-green, somewhat pointed at both ends: averaging 1·75 by 1·25 in. In Andalucía Mr. R. B. Lodge found them on May 5th. Dr. H. Gadow shot examples of this bird on April 17th 1884, round an isolated rock on the south coast of Portugal, on the inaccessible summit of which it appeared to be breeding, in company with some Gulls; and Mr. Boyd Alexander took its eggs from nests made of acacia twigs on May 10th, on ledges or in recesses of sea-cliffs, in the Cape Verde Islands. The note of alarm or defiance resembles the syllables *ak*, *ark*, and *ork*. The food consists of small fishes, aquatic insects, frogs and worms.

The adult in spring and summer has the beak black; lores lavender; irides varying from yellow to pale lavender; the entire plumage pure white; on the nape two long narrow feathers; some lanceolate plumes at the bottom of the neck in front; dorsal plumes greatly lengthened and filamentous; legs mostly black, with yellowish spots on the toes; claws black. For some time after the autumn moult the dorsal and occipital plumes are absent, and the legs and feet are nearly black. Length to end of tail 21 in. (bill 4 in.); wing 11·25 in. Mr. J. H. Gurney says that the plumes are sometimes as much developed in the females as in the males. Young birds have a greyish tinge, and no elongated plumes.

THE BUFF-BACKED HERON.

ARDEA BUBÚLCUS, Audouin.

A young Buff-backed Heron, which proved on dissection to be a female, was shot towards the end of October 1805 near Kingsbridge in Devonshire, where it had been seen for several days in the same field, following some cows, and picking up insects; it was by no means shy, and was fired at a second time before it was secured. The occurrence was recorded by Montagu, to whom the specimen was presented by Nicholas Luscombe, of Kingsbridge, and it is still (1898) preserved in the Natural History Museum at South Kensington. No other authenticated British-killed example is known to exist. Col. Irby assures me that the bird mentioned in 'The Zoologist' p. 3116 [1851] came from a well-known dealer, and that no reliance can be placed upon the date or locality assigned.

The Buff-backed Heron is essentially a southern bird; and an adult male, shot on the Obedska 'bara,' on May 29th 1883, is recorded by Mr. W. E. Clarke as the first instance known in Hungary; while on the Danube, as well as in Poland and Southern Russia, it is extremely rare. Even in the south of France, Italy,

Sicily, Malta and Greece it is seldom found, though not infrequent in Cyprus. Its only known breeding-haunts in Europe are in the southern portions of the Spanish Peninsula, and from March to autumn it is very common in the marshes of Andalucía, where thousands may be seen amongst cattle or on their backs, picking off ticks; whence the name "Purga-bueyes," a corruption of "Espulga-bueyes," meaning "cattle-cleaners," and also "Garrapatosa," *i.e.*, "tick-eater." It has occurred in Madeira and the Canaries, and it appears to be resident in suitable localities from Morocco to Egypt; while southward, it is found in Arabia and Persia, and over the whole of Africa, as well as in Madagascar. At the Caspian we touch the western range of a closely-allied species, *A. coromanda*, in which a rich orange-colour pervades the head and neck; and this representative extends across the warmer parts of Asia to South Japan; two examples of it are said to have been shot near Turin in May 1862, and one of them has been identified by Prof. Giglioli.

Like its congeners, the Buff-backed Heron breeds in colonies, making a nest of dry sticks and twigs on tamarisk-bushes in swamps, on trees, or sometimes in gardens. Mr. J. H. Gurney describes a colony of about five hundred birds in the Faioum, the nests being in a large bed of dead tamarisks, and from two to five feet above the water; but none of these contained young in June, while many were in course of building. Mr. R. B. Lodge found eggs in Andalucía on May 5th. The 3–5 eggs are very pale blue, and rounded at both ends; measurements 1·8 by 1·3 in. The food consists of cattle ticks (*Acari*), beetles and other insects turned up by the plough, grasshoppers, locusts, and frogs. The note may be syllabled as *grah*. In Egypt this species is often made to do duty for the Sacred Ibis with the tourist, and is to some extent respected by the peasants.

The adult in summer has the crown, crest, fore nape, and the plumes of the back and neck saffron-buff; the rest of the plumage white, somewhat creamy on the wing-coverts; lores, orbits, and irides golden-pink; beak reddish at the base, yellow at the tip; legs yellowish-red. Length about 20 in.; wing 9·5 in. The female is rather smaller than the male, and her plumes are less developed. After the autumn moult, and until the following spring, the elongated buff feathers are wanting, and the bird is almost pure white. In the young bird the skin about the base of the bill is very dark; the plumage shows little buff-colour, and the legs are dull olive.

THE SQUACCO HERON.

ARDEA RALLOÍDES, Scopoli.

About fifty examples of this little Heron have been taken in the British Islands since 1775, when a specimen was killed in Wiltshire. The other counties visited by it are Hants (and the Isle of Wight), Dorset, Somerset, Devon, Cornwall (about a dozen instances), Montgomeryshire, Denbighshire, Brecon, Salop, Notts, Suffolk, Norfolk, Lincolnshire, Yorkshire and Cumberland. In Scotland, one was shot on the Forth and Clyde Canal, another near Edinburgh, and a third on Sept. 7th 1896 in the Orkneys. In Ireland, Mr. Ussher informs me that nine or ten have been obtained at long intervals, between May and November 23rd. With very few exceptions, however, these visitors have arrived in spring or summer, and have been in immature plumage.

On the Continent the Squacco Heron is only a straggler to Poland, Northern Germany, Denmark, Holland, Belgium and the north of France; but it is not uncommon in the valley of the Loire, where I believe it breeds. South of that line and of the Alpine ranges, it is generally distributed in suitable localities throughout Central and

Southern Europe, from spring to autumn. In Spain it arrives in April, though in the valley of the Danube it does not do so before the middle of May. From the Canaries we find it numerous and resident in North Africa—including Egypt, and it inhabits that vast continent as far south as Namaqua Land, the Transvaal and Natal; while the late Sir Edward Newton obtained it in Madagascar. Persia appears to be its eastern limit in Asia.

The Squacco Heron breeds in colonies, in company with other members of the family; building a slight nest of sticks, on bushes or trees in flooded marshes. Mr. W. E. Clarke in Slavonia, and Messrs. Seebohm and Young on the Lower Danube, found eggs by May 26th; in Andalucía, however, Mr. R. B. Lodge found nests with their full complement by May 8th in 1897. The 4–6 eggs are greenish-blue—smaller and darker than those of the Buff-backed Heron: measurements 1·5 by 1·1 in. In its breeding-haunts this species is very pugnacious towards its congeners. The food consists largely of water-beetles and other insects, small crabs, molluscs, frogs, minute fish, and occasionally small mammals: an entire shrew having been found in the crop of one examined by the late Mr. Rodd. In its habits this bird is somewhat inactive, passing the greater portion of the day in one position, the head being drawn in between the shoulders like that of a Bittern; and in Spain Col. Irby noticed that it did not frequent the grazing-grounds after the manner of the Buff-backed Heron. It is usually very silent, but occasionally utters a harsh *rarr*. In dry seasons the nuptial dress is sometimes not assumed until late in the spring, and in Andalucía in 1868 (a very dry season) I found that even on May 21st some birds were still rather bare on the neck.

The adult in breeding-plumage has the head and hind neck pale buff, streaked with dark lines; the occiput furnished with eight or nine long lanceolate plumes, which are pure white in the centre and margined with black; sides and front of the neck warm buff; back more vinaceous; dorsal plumes elongated and filamentous; wing-coverts pale buff; rest of plumage white; bill cobalt-blue at the base, black at the point; lores naked and green; irides yellow; legs yellowish-pink; soles yellow. Length 20 in.; wing 9 in. In the immature plumage—most frequently seen in this country—the streaks on the neck are longer and broader, and the ground-colour is mixed with ashy-brown; the back, and the ends of the inner secondaries are wood-brown; and the younger the specimen the darker are the feathers along the middle of the back.

THE NIGHT-HERON.

NYCTÍCORAX GRÍSEUS (Linnæus).

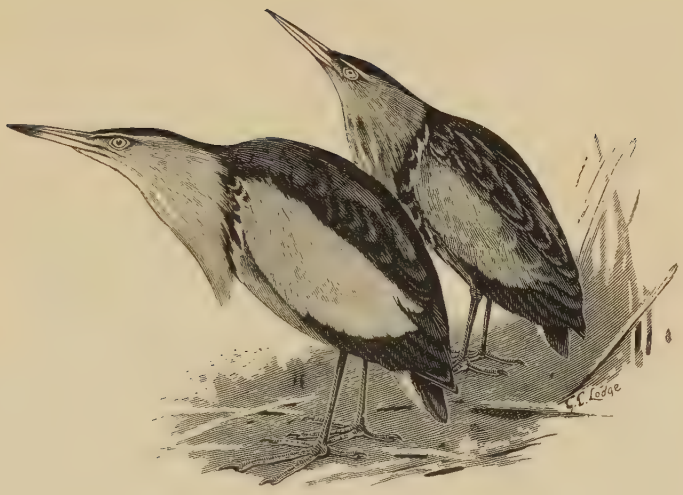
The first specimen of the Night-Heron recorded in England was shot near London in May 1782; since which time many examples have been obtained in the British Islands, and the species may be considered as an almost annual visitor in spring and autumn. In the south-western counties it would probably have bred, if unmolested, for in 'The Zoologist' (p. 2528), the late Rev. C. J. Bulteel gave details of his unrivalled success in destroying eight adult birds—four males and four females—in Devonshire, between May 23rd and June 22nd 1849. Both old and young have been taken along the south coast as far west as Cornwall; more than twenty in the eastern counties, and a good many inland; fewer from Yorkshire northward; while to the western side of the island its visits have been infrequent. In Scotland, four occurrences in the south, one in Aberdeenshire, several in Argyllshire, and one in the Outer Hebrides

are on record; while in Ireland about twenty examples have been obtained in various localities, from Cork to Donegal.

The Night-Heron occasionally wanders to the Færoes, South Sweden and Denmark, but even on the southern side of the Baltic it is rare, and of late years has gradually been driven from many of its nesting-places in the northern portions of Germany and Holland. In France it is chiefly known on migration, though it breeds sparingly in the south; it nests in the Spanish Peninsula, as well as on the mainland of Italy—which it leaves in autumn, though resident in Sardinia; while on passage it visits the coasts and other islands of the Mediterranean. Large colonies are found on the Danube, and throughout the districts of the Black and Caspian Seas. Eastward, it is distributed throughout temperate and southern Asia, as well as over the whole of Africa; in fact it is almost cosmopolitan, inasmuch as slightly varying forms inhabit America, from the Fur Countries down to the Falkland Islands. In Australia, and northward to the Pelew Islands and Celebes, the representative is *N. caledonicus*, which has the upper parts of a bright cinnamon-colour.

The Night-Heron breeds in colonies, usually building a nest of small sticks radiating from the centre, on trees or tamarisk-bushes in swamps; but in China, where it is held sacred, large groves are selected, and Swinhoe has described a vast assemblage round the great Honam Temple at Canton, where the nests are placed thickly in some venerable banyans. In some parts reed-beds are chosen, and in the swamps of Lake Michigan dead rice-stalks are built up into solid structures. The 3–5 eggs are very pale greenish-blue, slightly pointed at both ends: measurements 2 by 1·4 in. The bird commences sitting at once, and there is an interval of some two days between the laying of each egg. In Andalucía Mr. R. B. Lodge found eggs by May 8th, but further north incubation is later. The food consists of water-insects and their larvæ, worms, snails, small fishes and frogs. The note is a mournful *qua-a*, seldom uttered in the daytime, though after dark the birds are very noisy.

The adult male has the crown, nape, and middle of the back greenish-black; neck, wings and tail grey; under parts greyish-white; at the nape three to ten long white plumes; bill blackish above, lower mandible and lores lead-colour; iris brick-red; legs and feet yellow. Length about 23 in.; wing 12 in. The female is duller in colour and has shorter nuchal plumes. The young bird has the upper plumage umber-brown, with paler streaks and white spots; under parts striped with white, buff, and brown; no crest. Young males are capable of reproduction while still in immature plumage.



THE LITTLE BITTERN.

ARDÉTTA MINÚTA (Linnæus).

This small species has been obtained in nearly every county of England, especially in the eastern and southern districts; while there can be little doubt that it bred on some of the Broads of Norfolk comparatively recently, and formerly did so in other localities. In Wales, and on the west side of the island, it is of rare occurrence, as it is also to the north of Yorkshire; while to Scotland its visits are very irregular, though extending as far as the Orkneys and Shetlands. Mr. Ussher informs me that he has at least twenty-four records for Ireland, the majority from the southern counties. Most of the instances recorded in the British Islands have been between spring and autumn, but a few in the winter months.

The Little Bittern is only a rare wanderer to the Færoes, Iceland, Norway and Sweden; and although it has been obtained on several occasions in Denmark as well as the district of St. Petersburg, its usual migrations do not extend beyond the Baltic. Southward, it is found during summer in suitable situations throughout Europe; but even from Spain, Italy and Greece it takes its departure in autumn, to return in April. It occurs in the Azores, Madeira and the Canaries, as well as in North Africa, where its numbers are augmented by migrants from the north in winter—at which season it visits Egypt and Nubia. In Southern Africa it is represented by the smaller and more rufous *Ardetta podicipes*. In Asia, our Little

Bittern is found breeding from the shores of the Caspian to Kashmir and Sind, while it occurs in Nepal and North-western India; but eastward and southward it is represented by *A. sinensis*, the back of which is brown instead of black, and also by *A. cinnamomea*; while allied species inhabit Australia and America.

The nest, made of flags and blades of grass, is placed among growing reeds, and very little above the water; or in tamarisk-bushes; but sometimes it is in pollarded willows, and occasionally the bird makes use of the former abode of a Magpie, in bushes or hedges near a swamp. The eggs, normally 4–5 in number, though 9 are said to have been found, are usually laid in the latter half of May, are uniform dull white, with a greenish-grey tinge: measurements 1·4 by 1 in. When disturbed from her nest the female utters a sound like *gett, gett*; but the male emits a peculiar grunting *wof, wough*. The food, obtained chiefly by night, consists of small fish and their fry, frogs, reptiles, molluscs and aquatic insects. During the day the Little Bittern skulks in reed-beds, plantations of osiers, and other moist situations; and, when disturbed, climbs among the branches, and threads its way through the tangled vegetation with great celerity. The late Lord Lilford observed that on its arrival in Corfu and Epirus it frequented gardens, orange-groves and olive-trees. It often endeavours to escape notice by remaining motionless, with crossed legs, outstretched neck, and bill pointing upwards: thus resembling a dry reed or a dead bulrush. Mr. H. M. Wallis informs me that at Lake Varese a bird had such confidence in its powers of assimilation that it remained until grasped, and afterwards it sat quietly upon the gunwale of his boat.

The adult male has the crown, nape and back greenish-black; primaries and tail browner black; cheeks and neck warm buff, wing-coverts paler; throat and under parts buff, with a few dark streaks on the breast and flanks; bill yellow; legs and feet greenish-yellow. Length about 13 in.; wing 6 in. The female is a trifle smaller, and differs in having a brown tinge on the head, the cheeks and hind neck rufous, back brown, wing-coverts brownish-buff; under parts buff, much streaked with wood-brown and umber. The young at first resemble the female, but the upper parts are duller in colour.

The members of the genus *Ardetta* resemble the true Bitterns in having only ten soft tail-feathers and two pairs of powder-down tracts, whereas the Herons have twelve tail-feathers and three pairs of powder-down tracts.

THE COMMON BITTERN.

BOTÁURUS STELLÁRIS (Linnæus).

The extensive reed-swamps and marshes, to which the Bittern resorts during the breeding-season, have greatly decreased of late years in England, owing to drainage and cultivation ; nevertheless, its eggs were occasionally found in the Broad-district of Norfolk down to March 30th 1868, and as recently as August 1886 a young bird with down still adhering to it was obtained there. Before the reclamation of the East Anglian fens the 'Butter-bump,' as it was called from its note, bred in them annually, as it did also in other suitable portions of England and Wales ; while, even at the present day, so many of the birds which visit us are shot in spring, that, if a little forbearance were exercised, the 'boom' of the Bittern might again be regularly heard in our land. To the mainland of Scotland the species is only an irregular visitor, occasionally wander-

ing to the Outer Hebrides, the Shetlands, and, perhaps, the Orkneys. In Ireland it is now chiefly found in winter, especially in co. Cork, though it used to breed in the south up to the first quarter of this century.

The Bittern is a rare visitor to the southern portion of Norway, but it is a spring-migrant to Sweden up to about 60° N. lat.; while in Eastern Russia it can be traced to 57°, and in Western Siberia to Yeneseisk. Southward, it is distributed in summer throughout the Palæarctic region, from Japan and China to the Azores; and it is resident in the warmer portions of Europe, where its numbers are augmented in winter by visitors from the north. It is found in Northern Africa, but is represented in the south by *B. capensis*.

Extensive reed-beds are the usual nurseries of this skulking species; but sometimes it selects swamps on the margins of unfrequented lakes. The nest, placed on the ground amongst the thickest herbage, is composed of dry reeds heaped together; the eggs, often laid in March or April, and usually 4 in number, are of a uniform brownish-olive colour, sometimes with a green tint when fresh: measurements 2·1 by 1·5 in. They are laid at intervals of several days, and incubation lasts about 25 days; while the young do not quit the nest till nearly able to provide for themselves. The Bittern usually feeds at night, and is seldom seen on the wing in the day, during which it remains in thick beds of reeds; but I have seen it take shelter in a tree on the skirt of a marsh. The flight is dull and flagging, and seldom sustained to any great distance, except on migration. In the breeding-season the male makes a loud booming or bellowing noise, whence, probably, the term *Botaurus*; but at other times the bird utters a sharp, harsh cry. The food consists of small mammals, birds, fish, water-beetles, lizards, frogs, and almost anything that can be swallowed. The Bittern has been described as a solitary bird; but forty to fifty have been observed on the wing in a flock, and in Lower Egypt Capt. Shelley got close to about a score reposing among the reeds. When wounded, the bird lies with the neck drawn in, but this can be shot out with startling rapidity and effect.

The adult has the crown and nape black; general colour buff, irregularly barred above and streaked below with black; feathers of the neck long and forming an erectile ruff; tail of 10 soft feathers; primary-coverts and quills barred with black and chestnut; bill greenish-yellow; legs and feet grass-green. Length 28 in.; wing 13 in. The sexes are alike in plumage. In the young bird the colour of the quills and coverts is nearly uniform.

THE AMERICAN BITTERN.

BOTAURUS LENTIGINÓSUS (Montagu).

It is difficult to refuse a place in the British list to a bird which, although an inhabitant of America, has been obtained on some thirty occasions in our islands, and which was first distinguished as a new species by Montagu, from a specimen killed in Dorsetshire in 1804. Since that date examples have been recorded from Kent, Sussex, Hants, Devon, Cornwall, Pembrokeshire, Anglesea, Lancashire and Yorkshire; in Scotland, from Dumfriesshire, Islay, Elgin, Aberdeenshire and Caithness; in Ireland about twelve: from cos. Londonderry, Down, Armagh, Louth, Kildare, Carlow, Wexford, Tipperary and Cork. As far as is known, all these, with the exception of one shot in Dumfriesshire on March 25th 1878, have been obtained between October and February: dates which coincide with those of the bird's well-known annual migrations. Although an example was killed in Guernsey on October 27th 1870, the American Bittern has not yet occurred on the Continent; but this may be accounted for by the fact that the greater part of the trade across the North Atlantic is to the British Islands, which are, also, the nearest land eastward.

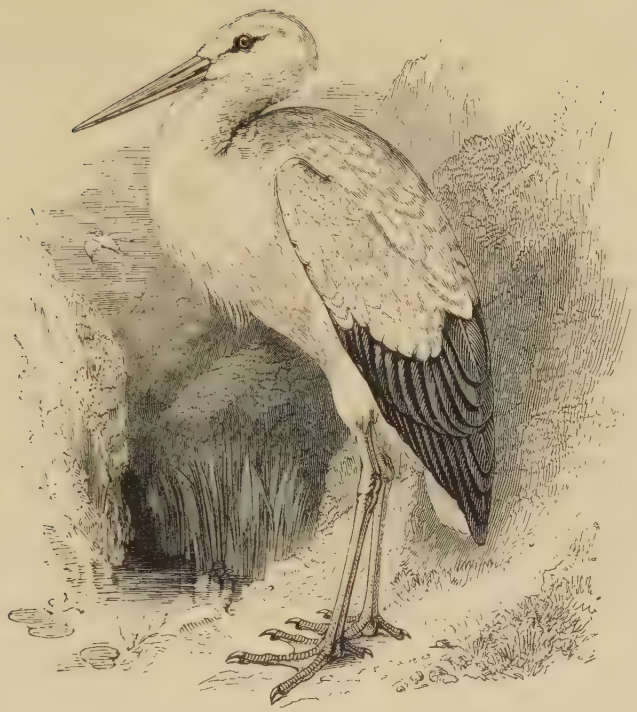
There can be little doubt that many, and probably most of our visitors, have been aided on their passage by being able to rest on the yards of vessels; especially on those of steamers, the square-sails of which are seldom set, so that a bird might easily remain, unobserved and undisturbed, by day as well as by night, while each twenty-four hours would find it, even on cargo-boats, some 300 miles further on its way across. It could probably exist without food for far longer than is necessary for such a transit; moreover, if hungry, or dislodged from its ship, its long slender feet would enable it to alight on patches of sargasso and other masses of floating sea-weeds found on the line of the Gulf Stream, and among these it would find small fish, crustaceans, and other sustenance, until another vessel passed by. Doubtless numbers perish for one that reaches our shores.

An exhausted example of this species was captured by dogs at Egedesminde in Greenland, in 1869; and in America its range on the MacKenzie River extends to the Arctic Ocean, though the bird is probably rare so far north. South of the 58th parallel in the Fur-countries, it is found, as a breeding-species, down to Texas; while on its extended and bold autumnal migration it is a regular and sometimes an abundant visitor to the Bermudas, where it also occurs, though with less frequency, on its passage northward in March. In winter it visits the West Indian Islands and Guatemala.

When situated on dry ground, the nest is a very slight structure of reeds and grass; but in places liable to inundations it is sometimes considerably elevated. The eggs, 4–7 in number, are equally obtuse at either end, and are of a uniform drab colour: measurements 1·9 by 1·45 in. This Bittern usually feeds on frogs, lizards, and small mammals, but it is almost omnivorous. The note of the male in the early part of the breeding-season is a deep choking croak, resembling the noise made by driving a stake in boggy soil, whence its common name of "Stake-" or "Post-driver."

This species resembles our Old World bird in general plumage, but is smaller in size; its bill, legs and feet are more slender; the feathers of the upper parts are more finely vermiculated; and the *primaries* are *uniform leaden-brown*. Length about 24 in.; wing 11 in. The young have a ruddier tinge and coarser mottlings.

A specimen of the American *Butorides virescens*, said to have been shot in Cornwall in October 1889, was exhibited at the Linnean Society in April 1890, by Sir C. Sawle (*Cf.* Zool. 1890, p. 105 and p. 181).



THE WHITE STORK.

Cicónia Álba, Bechstein.

It does not appear that the White Stork has ever been more than an irregular wanderer to the British Islands; and as long ago as 1544 Dr. William Turner, writing at Cologne, expressed his surprise that a bird so common in Germany should be unknown in England. Later, it was considered by Merrett, Willughby and Ray a very rare visitor, but Sir Thomas Browne remarked on its occurrence in the fens and marshes of Norfolk, where, from the proximity of Holland—in which the species has long been protected—more examples have been obtained than in all the rest of Great Britain. An adult female, shot about May 17th 1861 at Woodbastwick, contained an egg ready for exclusion, which was cracked by the fall of the bird; and more than thirty specimens have been recorded from East Anglia, chiefly in the spring. Several have been noticed from Northamptonshire southward, and on April 23rd 1884 a flock of six passed over the town of Newbury in Berkshire, flying in a north-

easterly direction. Northward, the occurrences of this species become less frequent, and in Scotland they are rare, though extending to the Orkneys and Shetlands; while still fewer are known on the west side of Great Britain. In Ireland six are on record.

In Norway the White Stork has been found as far north as Bergen, and is a yearly visitor to the south, where, however, it is not encouraged to breed, as it is in Sweden, Denmark, Holland, Germany and the greater part of Central Europe. In France, Italy, Sicily, Sardinia and Malta it is of irregular appearance; but in the Spanish Peninsula it nests freely on the towers and belfries of churches in towns, and on the 'almiares' or stacks of the farm-houses, as well as on trees. It is equally abundant in Slavonia and the Danubian Provinces, although not specially protected there; as well as in Turkey and Southern Russia; but in Greece and the Archipelago it is less common. It breeds in Asia Minor, and sparingly in Palestine, which it visits in great numbers (Canon Tristram says tens of thousands) on migration; while it ranges to Central Asia and India, Mr. Parker having even found it nesting as far south as Ceylon, in December. In China and Japan the representative species is *C. boyciana*, with black bill and red lores. In the west, the White Stork is a wanderer to the Canaries, and it is numerous from early spring to autumn in North Africa, where a few remain during the winter; but the majority pass southward—immense numbers migrating through Egypt—as far as Natal and Cape Colony.

The nest, built of sticks, and added to year by year, is usually placed on buildings, or on cart-wheels set up for the use of the bird, in Holland and other parts of the Continent; but trees and the ledges of cliffs are also utilized. The eggs, 3–5 in number, are pure white: measurements 2·8 by 2·1 in. The yolk is of a very deep orange-colour. Incubation, which lasts a month, begins by March 25th in Morocco, but is later in the north. The old bird feeds the young by inserting its beak within the mandibles of the nestling, and then disgorging the food; this consists of frogs, reptiles, fish, grasshoppers and other insects, worms, small mammals and young birds. During the breeding-season Storks keep up a constant clattering with their bills. The pleasing legend of the conjugal fidelity of this species is quite unfounded on fact.

The adult has the bare skin round the eye black; plumage white, except the quills, which are black frosted with grey; bill, legs and feet red. Length 40 in.; wing 23 in. In the young the quills are dull black, while the feet and legs are brownish-red.

THE BLACK STORK.

Ciconia nígra (Linnæus).

The Black Stork is a far rarer visitor to England than its congener, and there is no authentic record of its occurrence in Scotland or Ireland. In May 1814 a bird, disabled by a slight shot-wound, was captured on West Sedgemoor, Somersetshire, and lived in the possession of Montagu for more than twelve months; it is now in the British Museum. Since that time examples have been obtained, at long intervals, between the months of May and November, in the Scilly Islands (1), Devon (1), Dorset (2), Kent (2), Middlesex (1), Oxfordshire (1), Essex (1), Suffolk (1), Norfolk (2), Yorkshire (1), and Durham (1).

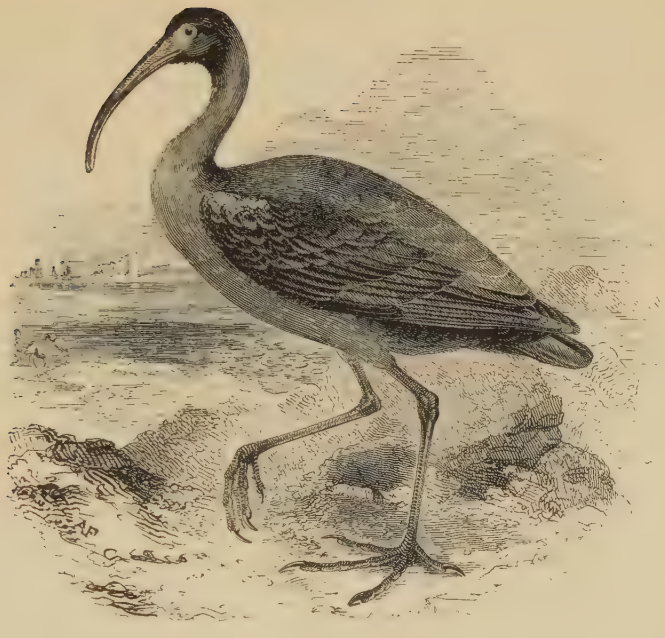
This species is only a straggler to Norway; but it breeds sparingly in the forests of the south of Sweden, Denmark, Brunswick, Hanover, Pomerania, East Prussia and some other parts of Germany; also in Poland, Central and Southern Russia, the Danubian Provinces, Turkey and Spain. In the rest of Europe it occurs as a migrant,

and is even said to visit Madeira. Eastward it breeds in Palestine, and can be traced—through Persia, Turkestan, Siberia up to 55° N. lat., and Mongolia—to China, where it nests on cliffs in the mountains near Pekin; while flocks winter in India as far south as the Deccan. It is found throughout Northern Africa, from Morocco to Egypt, Nubia and Abyssinia; and appears to be generally distributed during our cold season down to Cape Colony.

Unlike the White Stork, which frequents the society of man, the Black Stork has its breeding-haunts in the most secluded spots, and generally in marshy woods, where it builds its nest in high trees. Mr. H. J. Elwes has described one in Jutland as a large and heavy mass of sticks, lined with tufts of green moss, and situated about thirty-five feet from the ground, in a good-sized beech; another was on an old nest of the White-tailed Eagle, in a smaller tree overlooking a wide swampy valley in the forest; and the late Mr. Seebohm found similar structures in oaks and firs. In Spain, Bulgaria and Turkey, clefts and ledges of cliffs are also used. The 4–5 eggs are coarse in texture and of a dull greyish-white colour, while, when the shell is held up to the light the lining membrane shows *green*, whereas it is yellowish in the egg of the White Stork; the dimensions also are smaller, being about 2·6 by 2 in. The male stands by the female whilst she is sitting, and little fear of intruders is shown. Incubation commences in the latter half of April, and, as a rule, the Black Stork arrives at its northern breeding-stations rather earlier than its congener; while it leaves later in the autumn, and has once been obtained in Sweden in winter. Its food consists largely of fish; but frogs, reptiles, small mammals, and aquatic insects are also eaten. The young utter a peculiar guttural note; the adults, however, merely make a clattering noise with their bills. The illustration was taken from a bird which lived in the gardens of the Zoological Society in the Regent's Park for about thirty years.

The adult has the head, neck, upper breast and mantle glossy black, with blue, purple, copper-coloured and green reflexions; under parts below the breast white; bill, orbits, pouch, legs and feet coral-red. Length 38 in.; wing 21 in. The sexes are alike in plumage. In the young bird the upper feathers are dull metallic-brown, margined with dirty-white; and the bill and legs are olive-green, afterwards turning to orange-red.

The Storks, Ibises, and Spoonbills have no powder-down tracts.



THE GLOSSY IBIS.

PLÉGADIS FALCINÉLLUS (Linnæus).

The Glossy Ibis is now only of accidental occurrence in the British Islands, but towards the end of the last century its visits appear to have been more frequent, and near Lynn in Norfolk it was known to gunners and fishermen as the 'Black Curlew.' In the eastern and midland counties and on the estuaries of the south coast it has been observed more often than in the west, though it has occurred in Pembrokeshire and Lancashire ; it is even popularly —and erroneously—supposed to be the bird called the *Liver*, figured in the arms of Liverpool. Northward it is decidedly rare, and only six examples seem to have been obtained in Scotland : one of them near Kirkwall, Orkney, and one at Unst in the Shetlands. In Ireland it has occurred at least twenty times, either singly or in small flocks, chiefly in the southern and eastern counties, and once near Belfast. As a rule the visits of this species have been in autumn or early winter, but occasionally in spring.

To the Færoes, Iceland, Scandinavia, Denmark, and the Baltic Provinces the Glossy Ibis is a mere wanderer ; and north of the Alpine ranges of Central Europe its appearance can only be con-

sidered irregular. Southwards it becomes common, and in Spain it nests freely in the marshes of Andalucía. Its most northern colonies appear to commence in Slavonia, and are to be found along the valley of the Danube, extending thence throughout the Black Sea district to the Caspian. In Asia it ranges to 48° N. lat., and breeds as far south as Ceylon; while in winter it passes down the Eastern Archipelago to South Australia. It nests in suitable localities in North Africa, and on the east side of that continent its migrations extend to Natal. Our Glossy Ibis appears to be found in the Eastern United States, but the representative species in Neo-tropical America is *P. guarauna*, which has a white margin of feathers surrounding the bare space on the forehead.

Mr. W. Eagle Clarke found the Glossy Ibis breeding by thousands in the great bird-colony on the Obedska 'bara' in Slavonia; its nests, constructed of sticks and a few reeds, being placed among the lower branches of sallow-bushes (tamarisks in Spain), either on the surface of the water or very little above it. The eggs, 3–4 in number, are oval, and are of a dark greenish-blue, slightly pitted: measurements 2 in. by 1·5 in. In India and Ceylon the nests are built in trees, and Col. Legge describes the young as climbing actively among the branches, and clinging so firmly with their feet as to be removed with difficulty. The food consists of small amphibians, reptiles, crustaceans, &c., obtained on the muddy banks of rivers and estuaries; also of locusts, scorpions and beetles. In flight the pinions are first moved rapidly, and produce a whizzing sound, after which the bird skims for some distance.

The adult has the head, neck and under parts deep reddish-brown; back, wings and tail brownish-black, glossed with metallic-green and purple; bill dark brown; bare skin round the eyes greenish-grey; irides hazel; legs and feet bronze-brown. Length about 22 in.; wing 10·75 in. The sexes are alike in plumage, but the female is slightly smaller. The young bird has no glossy tints; and the head, cheeks and neck are streaked and patched with greyish-white.

The family of the Ibises, of which *Plegadis* forms a somewhat outlying genus, has no affinity to the Curlews, with which, owing to a superficial resemblance in the shape of the bill, it was formerly associated; its relationship is with the Storks (*Ciconiidæ*), and, more closely, with the Spoonbills (*Plataleidæ*). The egg of the Sacred Ibis is similar to that of the Spoonbill, and so are, probably, the eggs of the other typical species.

THE SPOONBILL.

PLATALÉA LEUCORÓDIA, Linnæus.

Prof. Newton has shown (Tr. Norfolk Soc. 1896, p. 158) that in the time of Edward I. (1300) the Spoonbill was known, under the name of "Popeler," to breed in Norfolk; while up to the days of Willughby and Sir Thomas Browne it used to nest on trees—in company with Herons—in that county and Suffolk. Mr. Harting has drawn attention to breeding-places near Goodwood in Sussex, and at Fulham in Middlesex (Zool. 1877, p. 425; 1886, p. 81) in the sixteenth century, when its usual name was "Shoveler," or "Shovelard"; and Owen, in 1602, describes it as nesting on high trees in Pembrokeshire. Even now the bird frequently visits East Anglia, and is found from time to time along the south coast, especially in Cornwall; while occasionally it wanders up the Thames valley. In Pembrokeshire and on the flats of Cardigan Bay it is often seen, though on the west side it is rare. Nine specimens have been recorded from Yorkshire, but northward it is of rare occurrence; stragglers have, however, been obtained in the Inner

Hebrides, Orkneys and Shetlands. In Ireland, Mr. Ussher informs me that he has records of 33 occurrences in the maritime counties, principally in the southern districts and especially in co. Cork.

The Spoonbill seldom visits Scandinavia or Northern Russia, and was first obtained in Heligoland on July 14th 1892; but south of 56° N. lat. it breeds in suitable localities, even as near us as Holland, where, however, its haunts are rapidly being drained. Its arrival is usually in April, and it remains till September, or a little later. To France it is now merely a wanderer, though in the time of Belon it used to nest on trees in Brittany and Poitou; but it breeds in the south of Spain, as well as along the Danube and in the Black Sea district, whence it emigrates in winter. Westward it wanders to the Azores, Madeira and the Canaries; while eastward, it ranges to India, Ceylon, and Northern China; in Africa it appears to be resident as far south as Socotra. Representatives are found in South-east Asia, South Africa, and Australia; but the Roseate Spoonbill of America belongs to a different genus, *Ajaja*.

The nests, formed of broken-down and piled-up reeds, may be on the surface of the water, as in Holland and Spain; on the submerged branches of willows, as in Slavonia &c.; or on trees, as already mentioned; the last being a favourite site in India and Ceylon. In Southern Europe laying sometimes begins very early in May, the eggs, 4–6 in number, being deposited at considerable intervals; they are rough in texture, very variable in shape, and dull white, streaked and spotted with reddish-brown, in colour: measurements 2·5 by 1·8 in. The food consists of small fish, frogs, molluscs, aquatic insects and crustaceans, obtained in shallow pools; and Wolley noticed that the bird, while feeding, kept its bill immersed, upon which, as on a pivot, a movement in a semi-circle was rapidly maintained by the whole body. In captivity the Spoonbill is inoffensive to other species, and will eat any sort of offal. Mr. R. B. Lodge heard the bird emit a few low notes while flying round its nest; but it has no true vocal muscles, though a singular figure-of-8-like convolution of the windpipe is found in old birds of both sexes.

The adult male in spring has the plumage white, with a tinge of yellow on the occipital plumes and fore neck; bill yellow at the tip, the rest black, barred with yellow; gular region orange; irides red; legs and feet black. Length 36 in. (bill 8·5 in.); wing 14·5. The female is slightly smaller and has less crest. In winter the plumes are absent. The young has the bill narrower at the tip, more flexible, and of a livid flesh-colour; irides ash-colour; shafts and ends of the quill-feathers black, and no occipital plumes.

THE FLAMINGO.

PHŒNICÓPTERUS RÓSEUS, Pallas.

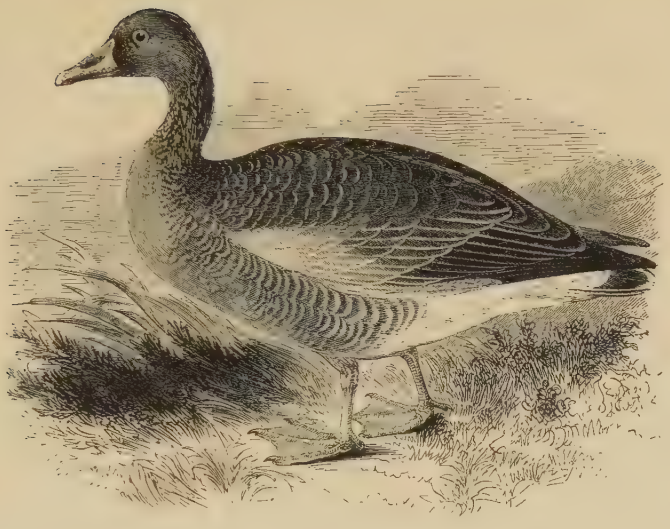
Early in September 1881 an adult Flamingo was seen for a week or so on the estate of the late Sir John H. Crewe, in the northern part of Staffordshire; but having crossed the river Manifold to another property, it was captured and taken to the owner of the land, by whom it was kept alive for a few days, and then killed. Another adult bird, recorded by Lord Henry Scott (Zool. 1884, p. 338), was shot on November 26th 1883, on the mud banks outside the Beaulieu river, Hampshire, which it had frequented for about a fortnight after a great gale from the south-west. Capt. G. E. Shelley has informed me that on August 12th 1884, when waiting near New Romney for the evening flights of Curlews, an adult Flamingo flew past him, having been put up by his two nephews, who got within

about fifty yards of it. Inquiries failed to show that any bird of this species had escaped from menageries about the above dates; but one which was shot in the Isle of Sheppey on August 16th 1873, may have been an individual which escaped from the London Zoological Gardens on July 19th.

The visits of the Flamingo to England are not nearly so remarkable as are those of many other southern species, for stragglers have been obtained in Pomerania and Hesse-Darmstadt; single birds, and even flocks, have been observed from time to time along the Lower Rhine; and varying numbers often ascend the valley of the Rhone, visiting the lakes of Switzerland, Savoy, and the *étangs* of La Brenne in Central France. Flocks still resort to the lagoons of the Rhone delta, and in years when there is plenty of water they breed on the étang de Valcarès; while still larger communities are found at the mouth of the Guadalquivir in the south of Spain, and at Tunis and other suitable places in North Africa. The Flamingo also breeds in the Cape Verde Islands; ranges over the whole of Africa; and inhabits Asia from the Caspian to Lake Baikal.

It had long been known that Flamingoes bred in colonies, depositing their eggs on nests built of mud, and raised to heights varying from a few inches to about two feet, according to the liability of the soil to inundation; but Mr. Abel Chapman was the first to prove, from personal observation (Ibis, 1884, pp. 86–89), that the birds sit with their long legs doubled under their bodies, and do not stand astride of their nests, as popularly supposed and erroneously pictured. The eggs, laid about May 24th, are 2 in number, and have a very chalky-white surface, beneath which the shell is greenish-blue: measurements 3·6 by 2·25 in. Mr. W. Eagle Clarke found that in the Camargue the food consisted of minute crustaceans (*Artemia salina*), &c. Flamingoes feed by day; their cry, formation in flight, and moult are Anserine, and they swim with ease.

The adult has the general plumage rosy-white, with scarlet wing-coverts and black quills; irides and bare skin next the eye yellow; bill rosy at the base, black at the tip; legs and feet pinkish-red. The length to the tip of the tail varies, irrespective of age or sex, from 50–60 in.; wing 16–17 in. In the young of the first year the pink is absent, except a slight trace of it on the wings; the secondaries are irregularly barred with black, and the bill, eyes, legs and feet are dull lead-colour. The nestling is covered with greyish-white down; the bill is nearly straight.



THE GREY LAG-GOOSE.

Ánser cinéreus, Meyer.

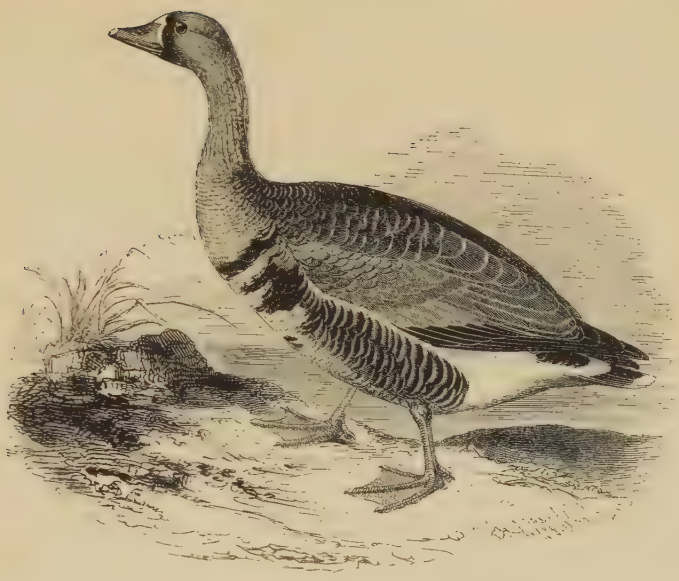
This species is generally supposed to be the principal source from which our domestic race has sprung, and, according to Prof. Skeat, the trivial name indicates that it is the species of 'Grey' Goose which in former days *lagged* behind to breed in our fens, when its congeners had betaken themselves to more northerly regions; Mr. Harting, however, suggests that "lag" is derived from "leag" or "lea," and means "field-" (goose) as distinctive from the "rut-" or root-eating species, such as the Brent. Nestlings were taken in the Cambridgeshire fens up to 1773, and breeding continued in Lincolnshire up to the early part of this century; but this species is now rare along the east coast, while of very irregular occurrence in the south and west, even in winter. Even in the Solway district and throughout the greater part of Scotland it is seldom met with; but it still breeds, though in rapidly decreasing numbers, in Ross, Caithness, Sutherland, and, more abundantly, in the Hebrides, especially on the outer islands; being the only kind of Wild Goose which nests in Scotland. To the Orkneys and Shetlands it is only an accidental visitor. In Ireland, a colony of semi-domesticated birds has for many years been resident on the lake at Castle Coole (Lord Belmore's), and from autumn till late spring some numbers are to be found, chiefly

in the southern and western counties, though the species is less local than is generally supposed. There can, however, be little doubt that the majority go past our islands, to the south of Europe.

Though now only a visitor to the Færoes, the Grey Lag-Goose breeds in the south of Iceland, and is tolerably numerous during summer in Scandinavia; also in Russia as far south as the Caspian, as well as in the Black Sea district and along the valley of the Danube. A limited number breed in Denmark, and—very locally—in Holland and North Germany. Occasionally it has been known to nest in the south-west of Spain, where vast flocks are found in winter; in the Mediterranean basin, however, as well as over Central Europe, it is chiefly observed in cold weather. In Asia it seldom reaches the Arctic circle, and Mr. Popham did not meet with it on the Yenesei, while southward it (or a closely-allied form, *A. rubrirostris* of Hodgson), extends to Canton in China, and Central India.

The nest, generally placed among coarse grass or rank heather, though sometimes on a ledge of a crag, is composed of heather, small twigs, reeds, or moss, without any lining until the female has laid her eggs, which she then surrounds with down plucked from her breast. These, usually 5–6 in number, though 12 are said to have been found, are dull yellowish-white: measurements 3·5 by 2·4 in. In Scotland incubation generally begins about the middle of April, and after the females begin to sit the males leave them and collect in flocks at the nearest water. This Goose feeds on grass and other vegetable substances which are found inland, and—unless very much harassed—always by day; at night it betakes itself to promontories, sand-banks, and other spots difficult of access. On long flights, a changeable but more or less wedge-shaped formation is often assumed by flocks of this, as well as of all the other 'Grey' species, whence the term 'a *skein* of Geese'; while old sportsmen usually spoke of a 'gaggle': the latter term having reference, no doubt, to the noise made by the birds.

The adult has a few white feathers round the base of the bill; the general plumage of the head, neck and upper parts greyish-brown; lower breast and abdomen dull-white, with a few black spots. The distinguishing characteristics of the species are the bluish-grey rump and wing-coverts, flesh-coloured bill with a *white* nail at the tip, and flesh-coloured legs and feet. Length: male 34 in.; wing 17·5; female 30 in., wing 16 in. Weight 8–10 lbs. The young are darker than the adults, and have no black spots on the under parts.



THE WHITE-FRONTED GOOSE.

ANSER ÁLBIFRONS (Scopoli).

The White-fronted—or, as it is sometimes called from its hoarse note, the Laughing—Goose, is a smaller bird than the preceding species, which, however, it resembles in having a *white* nail at the tip of the bill. It is a winter-visitor to the British Islands, and large flocks occasionally arrive in England, especially in the south and south-west; but it is not plentiful on the east coast, and is local in its distribution. It annually visits some of the bogs in Wales, as well as Swansea Bay, and is the species found in large numbers on the Severn, especially near Berkeley, from December to March. It is uncommon on the east side of the mainland of Scotland, except near the Moray Firth; while on the west it occurs but sparingly in the Outer Hebrides, though in Islay it is the commonest of the 'Grey' Geese, arriving early in October, and remaining till the middle of April. It is irregularly plentiful in the Shetlands, and is the commonest species in the Orkneys. In Ireland it is abundant, and more widely distributed inland than any other member of the genus.

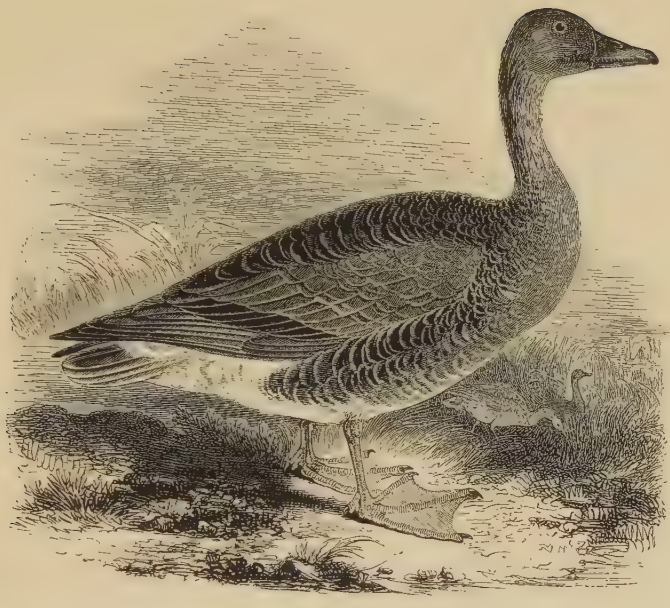
The true White-fronted Goose has occurred in the Færoes and throughout Iceland; and although it is not known to nest in Norway or Sweden, yet in winter it visits their coasts, as well as

those of Denmark and Western Europe as far as the Mediterranean. It goes rather far north to breed ; for Mr. Pearson found it on both islands of Novaya Zemlya, and Mr. Popham informs me that it is plentiful on the Lower Yenesei. Middendorff describes it as the commonest Goose in the Taimyr district, whence, in the cold season, it migrates as far south as Shanghai and Northern India. Westward, its lines of migration seem to be down the Volga and other great river-valleys to Syria, Egypt and Nubia. This species was domesticated by the ancient Egyptians, as shown by paintings on a slab from Maydoom, as well as on others in the temple of Amada in Nubia, and in the British Museum.

The bird which breeds in the northern districts of Scandinavia and on the fjelds, is characterized by smaller size, somewhat darker plumage, and a short bill straight ridged from the tip to the forehead, on which the white extends beyond the line of the eye. By those who admit its claim to specific rank this is known as the Lesser White-fronted Goose, *Anser erythropus* of Linnæus, and a young male of this was shot by the late Mr. A. C. Chapman at Holy Island in Northumberland, on Sept. 16th 1886. The late Mr. Seebohm obtained this form—as I consider it—on the Yenesei, and the area which it visits on migration appears to be nearly identical with the range of the larger and more numerous bird. The White-fronted Goose which is found in Greenland and in America up to 72° N. lat. (*A. gambeli*), is a very large bird, with a great deal more black on the breast, abdomen, and flanks, and much darker under wing-coverts ; it occurs as far west as Alaska, and visits the northern Asiatic coast.

The nidification of the White-fronted Goose is like that of its congeners; the 5–7 creamy-white eggs measure 3 in. by 2 in. For its feeding-grounds this species appears to prefer fields of grass and clover to stubbles. It breeds in captivity, and has been known to produce a brood by union with a Bernacle Goose.

The adult male has a white frontal band ; upper plumage brownish-ash ; breast and belly brownish-white, broadly barred with black ; bill orange-yellow, with a *white* nail at the tip ; legs, toes and webs orange. Length 27 in. ; wing 16 in. Good weight, 6½ lbs. The female is rather smaller and has less black on the breast. The young are darker and more uniform in colour, and the feathers at the base of the upper mandible do not show any white till January ; while there are no black markings on the breast in females ; and the bill-nail is light brown.



THE BEAN-GOOSE.

ANSER SÉGETUM (J. F. Gmelin).

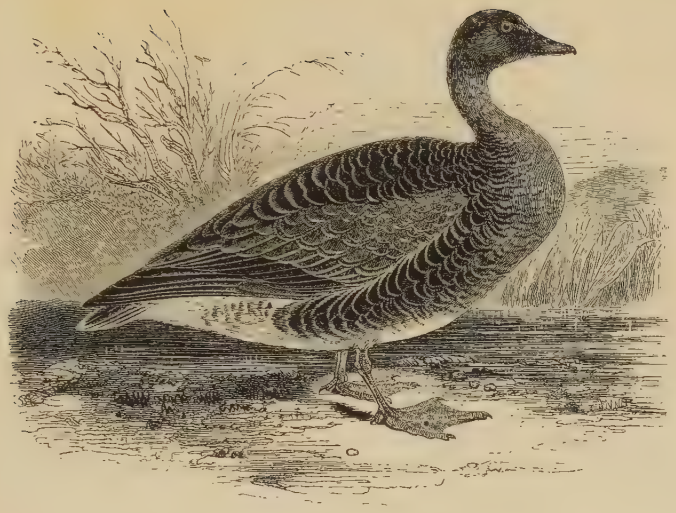
This species and the Pink-footed Goose, next to be considered, may usually be distinguished from the two preceding by the *black* nail at the tip of the bill. The Bean-Goose does not breed in any part of the British Islands, but it comes to us in autumn, and is widely, though not abundantly, distributed along our coasts during the winter; a return migration being observable early in spring. On the eastern side, and also in Lancashire, it is decidedly less plentiful than the Pink-footed Goose; but in Cornwall it is said to predominate. On the mainland of Scotland and in some of the islands it is comparatively rare, while its reported occurrences in the Outer Hebrides, Orkneys and Shetlands require confirmation. In Ireland it is at times numerous in the midlands and west, though rare in the south, and ranks next in abundance to the White-fronted Goose.

The Bean-Goose has not been identified in Iceland, and I strongly suspect that the "*A. segetum*" recorded from East Greenland by the Danish Expedition of 1891–92 is the next species. It breeds freely in Scandinavia to the north of lat. 64°, and also in North Russia,

where Messrs. Harvie-Brown and Seebohm found it nesting on the 'tundras' of the Petchora, while at Dvoinik, on July 27th, several hundred old Geese and about as many young were observed marching like a regiment of soldiers, most of them being in full moult and unable to fly. According to Mr. Trevor-Battye, Admiral Markham, Mr. H. J. Pearson, and others, this species is abundant on Kolguev, Waigats, and both islands of Novaya Zemlya; in fact, it is the predominating 'Grey' Goose on Kolguev (Trevor-Battye), and Mr. H. L. Popham makes a similar remark respecting the Yenesei. Eastward of about 115° long. in Siberia, the representative is *A. serrirostris*, a larger bird with some tawny colour on the head and neck, large flocks of which visit Japan and China in winter. Our bird is not known to reach India, but it occurs in Palestine and the basin of the Mediterranean, and is common in Russia down to the Caspian and Poland; while, though rare in the Iberian Peninsula, it is said to have been obtained in Madeira.

The nest is built early in June, in a tussock of sedge or upon a hillock in an islet; the eggs, up to 6 in number, are dull creamy-white, and are smaller and lighter in weight than those of the Grey Lag-Goose: measurements 3·2 by 2·2 in. The Bean-Goose is decidedly herbivorous, feeding by day on pastures; and its name is probably owing to the long and repeated confusion of this species with the Pink-footed Goose, which is graminivorous. Sir R. Payne-Gallwey says that Bean-Geese are the slaves of weather; when frost sets in they are driven to the neighbourhood of tidal-waters; continued rain and wind keep them inland; a north wind unsettles them; a north-east wind, again, will bring them to the coast in anticipation of frost; a change, and they are on their travels once more. He adds that Geese are not very wary at night, nor do they appear to possess the power of vision of other wild-fowl. In confinement, this species has bred with the Pink-footed Goose.

The adult is characterized by its somewhat slender shape, long, weak bill—orange in the centre, and *black* at the base and on the *nail*—pinkish-yellow legs and feet, and the absence of any black on the breast; the general plumage is darker than in the two preceding species, and there is no bluish-grey on the shoulder. Though less bulky than the Grey Lag-Goose, it is nearly as long, being a slim bird: male 33–34 in.; wing long in proportion, and averaging nearly 19 in.; weight, 7½–8 lbs. The female is rather smaller. Young birds are generally darker, their markings are less distinct, and the neck has a tawny tinge.



THE PINK-FOOTED GOOSE.

ANSER BRACHYRHÝNCHUS, Baillon.

The late Mr. A. D. Bartlett was the first to call the attention of British ornithologists to the distinguishing marks of this species, in a paper read before the Zoological Society of London on January 8th 1839; although the name which he then proposed had to give way to one conferred in 1833 by Baillon of Abbeville. Subsequent observation has shown that the Pink-footed far exceeds the Bean-Goose in abundance on the east coast of England from the end of September onward through the colder months; for instance, nearly all the large flocks of 'Grey' Geese which frequent the marshes and uplands of Holkham and Burnham in Norfolk are of this species, while similar testimony is given respecting the Humber district by Messrs. Cordeaux, H. Sharp and F. Boyes, the eastern part of Yorkshire by the late A. Strickland and Mr. W. Eagle Clarke, and Northumberland by Mr. Abel Chapman. On the west side its predominance is less decided, while in the south its occurrences are not so frequently noticed. It is found in winter on the east coast of Scotland; as also on the west, and sparingly in the Outer Hebrides, but it is rare in the Orkneys, and not yet recognized in the Shetlands. In Ireland it was obtained and identified for the first time near Belfast, on October 21st 1891.

The Pink-footed Goose breeds in the north of Iceland, and is the

only 'Grey' Goose found breeding in Spitsbergen; but there is as yet no evidence of its presence in Franz Josef Land, Novaya Zemlya and the vicinity, Arctic Siberia or Kolguev. It visits Norway, but accurate information is scanty respecting its distribution in Sweden, Denmark, Russia and the greater part of Europe, for up to the present day some Continental writers on ornithology are unable to distinguish this species from the Bean-Goose; identified examples have, however, been obtained on passage in Holland, Belgium, and France. The reported occurrence of the Pink-footed Goose in India, or further east, in winter, is not yet confirmed by authenticated specimens.

The nest is said to be placed in situations commanding an extensive view, and the male is constantly on the watch to warn his mate of any approaching danger. Messrs. A. H. Cocks and Abel Chapman found three pairs with goslings in the yellow downy state at Magdalena Bay, Spitsbergen, on July 29th, by which date the adults had recovered the use of their wings, being more advanced in their moult than the Brent Geese. The white eggs are rather smaller than those of the Bean-Goose, measuring 3·15 by 2·15 in. In captivity the Pink-footed Goose is said to keep apart from its congeners. Its voice differs from that of the Bean-Goose in being sharper in tone, and the note is also repeated more rapidly. This species is partial to grain dropped in the stubbles, as well as young white clover, trefoil, &c.

The late Mr. Cecil Smith, who kept this and other 'Grey' Geese for many years, remarked that the Pink-footed Goose had the upper mandible pink in the centre with the base and edges black, and the nail (usually) black, while the legs and feet were pink; but the colours of the soft parts were not always constant, some of the birds which he bred having the light parts of the bill and the legs and feet orange (as bright and decided an orange as in the Bean-Goose). They were, however, slightly different in plumage, having the white markings on the tail broader, and the shoulder more blue-grey: in this respect resembling the Grey Lag-Goose, though the blue is darker than in that bird. To this may be added that the Pink-footed Goose is smaller than the Bean-Goose, the length being barely 28 in., wing 17·5 in., and the bill is markedly shorter in proportion; while Bartlett has pointed out that the formation of its sternum more closely resembles that of the White-fronted than that of the Bean-Goose. Weight $5\frac{1}{2}$–7 lbs.

THE SNOW-GOOSE.

CHEN HYPERBÓREUS (Pallas).

On November 9th 1871 my attention was called to two immature Snow-Geese in Leadenhall Market; and subsequent investigation, carried out with the assistance of the late Sir Victor Brooke, showed that they had been shot a few days before, on the lake of Tacumshane, co. Wexford, while a third was killed soon after in Wexford harbour, but not preserved. In October 1877, as recorded by Mr. Harting (Zool. 1878, p. 419), a flock of seven were seen near Belmullet, co. Mayo, two of which were captured, and one—a gander—subsequently paired with a Common Goose and had young. Having met with its death by an accident in the spring of 1884, it was presented by Mr. J. R. Crampton to the Museum of Science and Art, Dublin, the authorities of which courteously sent it to me to be figured, and its portrait by Mr. C. Whymper is at the head of the present article. There is some evidence that three birds sold at the dispersal of the Knowsley menagerie (Lord Derby's) had been obtained in Ireland.

In 1884, and again in the severe winter of 1890–91, birds and even flocks, were recognized on the wing by the Rev. H. A. Macpherson and Mr. D. L. Thorpe in Cumberland, by Mr. G. Bolam and Sir Ralph Payne-Gallwey in Northumberland, and by Mr. H. Sharp in Yorkshire, while three appear to have visited Berkeley on the Severn; but no examples were obtained.

The home of the Snow-Goose is in North America, where two forms are found, differing only in size. The larger nests in the Hudson Bay region, migrating southward—chiefly along the Atlantic coast—in winter. The smaller, to which the specimens obtained in Ireland clearly belong, breeds in Western Arctic America and Alaska, visiting the country between the Pacific and the Mississippi valley during the cold season. It is this race which occurs in Japan and was obtained in North-eastern Siberia by Pallas, who described it under the specific name *hyperboreus* (*Chen albatus* of Cassin); and to this probably belong the Snow-Geese which have from time to time been noticed in the Ural district, Greece, Germany down to Silesia, Heligoland and Holland. A female was shot near Lister, South Norway, on September 24th 1889; and in Southern France two have been procured out of flocks. One or both forms go as far south as the Bermudas, Texas and Cuba.

Mr. R. MacFarlane describes the nests as being placed near lakes, in hollows formed in the sandy soil, and well lined with down; the eggs, usually 5 in number, are chalky-white: measurements 3·4 by 2·2 in. The young fly in the middle of August, and by the end of September all have departed south. The food in summer consists of green rushes, insects &c., and in autumn of berries, especially those of *Empetrum nigrum*. Another member of this genus, *C. cærulescens*, differs only in having a varying amount of lead-coloured markings irregularly disposed over its plumage; and it has been suggested that this and the Snow-Goose may be coloured and white phases of the same bird, like those that exist in the case of some of the American Herons. There is a third white species, *C. rossi*, a very small bird.

The adult has the quill-feathers black, greyish at the base, as are also the coverts; remaining plumage pure white, the forehead sometimes stained with orange-rust colour; bill red, commissures black, nail whitish; legs and feet red. Length: male 28–30 in., wing 17–18 in.; female 23·3–24 in., wing 15–16 in. The young bird has the upper parts dull brownish-grey with darker centres to the feathers of the back and wing-coverts; under parts greyish-white; bill black; legs and feet lead-colour.

THE RED-BREASTED GOOSE.

Bernícla ruficóllis (Pallas).

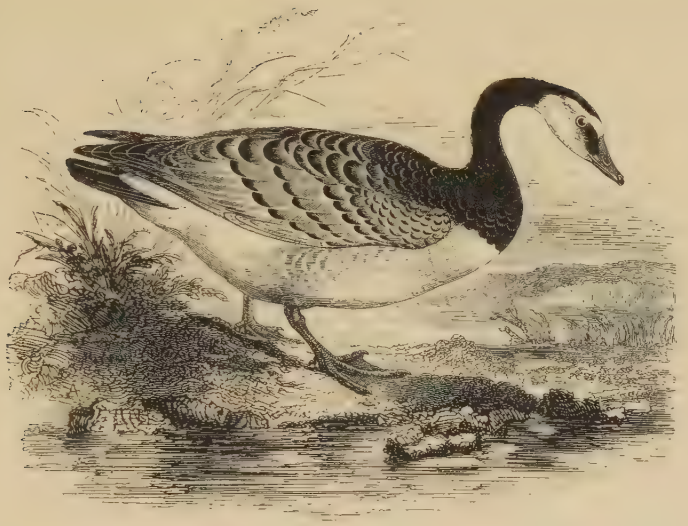
This small and richly-coloured Goose is a very rare wanderer as far west as Great Britain, and almost all our authenticated specimens in existence have been obtained on the east side of the island. The first recorded occurrence is that of a bird shot near London early in 1776 during a severe frost, and now in the Museum of Newcastle-on-Tyne; while another, taken alive near Wycliffe in Yorkshire about the same time, lived until 1785. One, killed near Berwick-on-Tweed in 1818, is in the British Museum (Natural History); and a fine example sent from Maldon in Essex, on January 6th 1871, is in the possession of Mr. Wilfrid Marshall of Norton Manor, Taunton. Two are said to have been obtained in South Devon and one in Norfolk. There are other records, but unsubstantiated.

During the summer the Red-breasted Goose inhabits those districts of Siberia which lie to the north of the limit of forest-growth in the valleys of the Ob and the Yenesei, and eastward to about long. 105°. In the former Dr. Finsch found it not uncommon; in 1877 the late Mr. Seebohm secured a bird which had been shot from

the nest in 70° 30′ N. lat. on the Yenesei, along the banks of which he afterwards saw adults with their broods; while on the Boganida, 115° E. long., Middendorff had long ago obtained the first authenticated eggs, and as a straggler this species has occurred as far east as Irkutsk. An important line of migration in autumn is between the Aral and the Caspian, and on the latter, according to Dr. Radde, large numbers are often caught in nets or shot on some grassy islands near the south-western shore, during the winter. The ancient Egyptians were acquainted with this handsome Goose, for it is accurately portrayed in colours on the Maydoom slab already mentioned (p. 400), and repeatedly, according to Mr. E. C. Taylor, at Thebes. I have seen a specimen in the collection of the late Lord Lilford, labelled by the late Mr. S. Stafford Allen "Alexandria, December 2nd 1874," and skins said to be from Algeria were offered for sale in 1884. Three examples have been obtained in Italy, five or six in France, several in Holland, and a few in Northern Germany, Denmark, and Sweden; while in Russia the bird is said to visit Archangel in spring and to pass through the Central Provinces, in small numbers.

On the Yenesei, in 1895, Mr. H. L. Popham found four nests, all placed at the foot of cliffs occupied by either a Peregrine or a Rough-legged Buzzard (possibly for protection from foxes), and well supplied with down; the 7–9 eggs being creamy-white: measurements, 2·79 by 1·93 in. (Ibis 1897, p. 99). The call-note is syllabled by Pallas as *shak-voy*, whence comes, according to Dr. Finsch, the local name at Obdorsk. The food consists of grass and green vegetables, and water is frequently taken. In a wild state this species is exceedingly gregarious, and in confinement it is very tame and sociable. A female, which lived in the Gardens of the Zoological Society from 1858 to 1870, paired with a Brent Goose, and, judging by its skin, now in the British Museum, the plumage is as brilliant in this sex as in the male.

The adult has a white patch in front of the eye; the crown, throat, hind-neck, and lower part of the breast black, bordered by narrow lines of white; ear-patches and breast rich chestnut; upper parts almost black, with greyish-white edges to the wing-coverts; tail black; belly white, barred with black on the flanks; bill, legs and feet very dark brown. Length 21–22 in.; wing 14·5 in. In the young bird the ear-patch is whitish, with rufous in the centre; the chest is merely tinged with reddish; and the rest of the upper and under parts are dusky-brown, except the abdomen and the tail-coverts, which are white.



THE BERNACLE GOOSE.

BERNICLA LEUCÓPSIS (Bechstein).

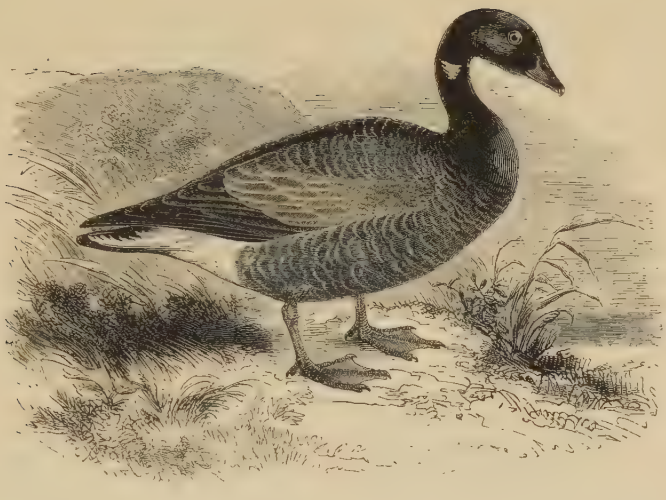
Competent observers seem to agree that the Bernacle Goose is a rather uncommon winter-visitor on the east coasts of England and Scotland, and chiefly occurs there when the weather is very severe on the Continent; while on the shores of the English Channel as well as inland, it is decidedly rare. On the west side, from Cornwall northward, it is not infrequent, and it is of regular occurrence in Lancashire and Cumberland; and in the upper part of the Solway Firth thousands are sometimes seen from the end of September—when they begin to arrive from the north-west—until the latter part of March. The same may be said of the Outer and Inner Hebrides and the neighbouring mainland, except that the birds are later in leaving for their breeding-grounds. To the Orkneys this species is a tolerably regular visitor, and Mr. Harvie-Brown found it plentiful in autumn in the south of Shetland, where, however, it does not pass the winter. In Ireland it is somewhat local, but rather abundant on the north and north-west coasts, as well as along Dundalk Bay on the east. There is, however, some difficulty in tracing its distribution, inasmuch as the Brent Goose is often misnamed "Bernacle."

In the Færoes and Iceland this species is of irregular occurrence; while it is unknown in Arctic America except as a very rare visitor

to the southern end of Hudson Bay. Three individuals obtained, respectively, in Nova Scotia, New York and North Carolina are suspected of having escaped from semi-domestication. That the Bernacle was an annual autumnal visitor to South Greenland has long been known, while Graah recorded its occurrence on the East coast of that vast island, and the Danish Expedition of 1891–92 found it breeding in considerable numbers up the extensive Fjords of Scoresby Sound, above 70° N. lat. From the evidence of Mr. J. Lamont, Mr. Leigh Smith's party, and Mr. Trevor-Battye, it occurs, and possibly breeds, in some parts of the Spitsbergen archipelago; but its existence is not proven on Franz Josef Land, Novaya Zemlya, or the islands to the south, except Kolguev, where Mr. Trevor-Battye saw five birds. No specimens were brought by the 'Vega' expedition from any part of Arctic Siberia nor by recent travellers. The nesting of a pair for several successive years on Borgevær, one of the Lofoten Islands, off the coast of Norway—as recorded by Prof. Collett—may be looked upon as exceptional. On migration this species visits Russia, Scandinavia, Denmark, and the north-western coasts of Europe, with even the large rivers: for example, the Weser above Bremen, and far up the Vistula; accidental visitors have been obtained at the mouth of the Guadalquivir in Spain, and near Foggia in Italy; and Mr. C. A. Payton says that he saw a couple on November 3rd 1887 as far south as Mogador.

The Bernacle breeds freely in captivity, its eggs being white and measuring 2·75 by 1·9 in. It feeds on the grass pastures near the sea, and always at night, except when very much harassed by gunners during moonlight. While feeding, the flocks are noisy and keep up a constant cackling, while sentinels are posted to give the alarm. The name is attributable to the vulgar belief that this species and the Brent were hatched from bernacles (*Lepadidæ*) attached to logs of wood floating in the sea, as often described up to the date of a paper published by the Royal Society in 1678.

The adult has a black stripe between the eye and the bill, while the head, neck and throat are also black; forehead, cheeks and chin white; mantle lavender-grey, barred with bluish-black and white; quills and tail-feathers almost black; breast and belly greyish; vent and tail-coverts pure white; flanks barred with grey; bill, legs and feet black. Length 27 in.; wing 16 in. The female is slightly smaller than the male. The young bird has the white of the cheeks varied with black, rufous edges to the feathers of the mantle, darker bars on the flanks, and paler legs.



THE BRENT GOOSE.

BERNICLA BRÉNTA (Pallas).

The Brent is the most abundant and generally distributed of the Geese which visit us; and is found, in varying numbers, on the coasts of Great Britain—particularly the east and south—throughout the cold months of the year. Unless wounded, it is seldom seen on inland waters, and it passes a great part of the day and night at sea; while at other times it frequents the extensive mud-flats and sand-bars on the shore which are exposed at every ebb-tide. Immense flocks resort to the vicinity of Holy Island on the Northumbrian coast, and multitudes have been observed in some seasons on the Cromarty and Dornoch Firths. In the Orkneys it is common, though local, while it visits the Shetlands annually; but in the Hebrides and along the west side of Scotland it is less numerous and less regular in its visits than the Bernacle. Vast quantities occur in many places on the shores and estuaries of Ireland.

In cold weather the Brent Goose migrates to the Færoes, the coasts of Scandinavia, and the shores of Europe generally; occasionally reaching the Asiatic and African portions of the Mediterranean, and even as far south as Mogador (Payton). It seldom occurs in Iceland, and the Danish Expedition did not obtain it in East Greenland, but it breeds on the west side and on the opposite shores of Grinnell Land up to 82° 30′ N. In varying

numbers it nests in the Spitsbergen archipelago, Franz Josef Land, Novaya Zemlya, Kolguev, and the coasts and islands of Arctic Siberia; near Kolguev, indeed, it must be abundant, judging from Mr. Trevor-Battye's experiences. On the Pacific side of North America its representative is *B. nigricans*, in which the white on the neck forms a nearly complete collar, while the black extends to the lower breast; this is the species which visits Japan. Throughout Arctic America eastward of Alaska our bird is found; though in American examples the under parts are, as a rule, somewhat lighter than in the majority of birds obtained in Novaya Zemlya &c. Both of these forms visit the British Islands, but the darker usually—though not invariably—predominates on the east coast south of the Humber. Exceptionally the Brent has been taken in Central Europe.

Col. Feilden describes a nest in Grinnell Land as composed of a foundation of grass, moss and stems of saxifrage, with a warm bed of down for the eggs, laid by June 21st and usually 4 in number, smooth and creamy-white in colour: measurements 2·7 by 1·8 in. The Brent Goose is a day-feeder, searching on the ooze, or with head and neck extended below the surface of the water in shallow places, for aquatic plants and sea-ware, especially grass-wrack and laver: whence the local names "Ware-Goose" and "Road-Goose," *i.e.*, Root-Goose. The call-note is a loud *cronk* or *honk*.

The adult has the bill, head, throat, and neck black, except a small white patch on each side of the last; mantle brownish-black, with paler edges, which in August, after the moult, are tinged with rufous-brown; quills, rump and tail black, tail-coverts white; upper breast black; lower breast and belly slate-grey; legs black (exceptionally with a reddish tinge). Length 22 in.; wing 13 in. Females are rather smaller than males. The young bird has little or no white on the sides of the neck, and the colours are less contrasted.

The Canada Goose, *Bernicla canadensis*, has been domesticated in this country for more than two centuries, and stragglers are occasionally shot out of the hundreds of unpinioned birds now in existence; but there is no evidence that wild American birds visit us, and it is significant that occurrences in Ireland are far rarer than in England. The Egyptian Goose, *Chenalopex ægyptiaca*, is another introduced species, examples of which often wander and are killed; though in a wild state it is not known to cross the Mediterranean. The Spur-winged Goose, *Plectropterus gambensis*, was introduced prior to 1678, and two examples have been killed in this country; but the species is not found wild in Africa north of the tropic of Cancer.

THE WHOOPER SWAN.

Cýgnus músicus, Bechstein.

This species is also called the Whistling Swan, both names referring to the peculiarity of its note; while by way of distinguishing it from its larger domesticated congener the prefix 'Wild' is frequently employed. Not much more than a century ago this fine bird used to nest in the Orkneys, but at the present day it is only a migrant or winter-visitor to the British Islands. In numbers which vary according to the mildness or severity of the weather prevalent in Northern Europe, it annually resorts to the coasts and islands of Scotland from November onwards, while in spring individuals out of passing flocks have been observed to linger until May about the old breeding-haunts. In hard frosts Whoopers are often abundant on the shores of England as far south as the Channel, where Poole Harbour and other suitable localities are favourite resorts; while in Wales, though the bird is no longer a regular visitor, a lake with an island in the middle, near Solva, still bears the name of Llyn-yr-Alarch or Swan-lake. On the coasts of Ireland the Whooper is an irregular winter-visitor, but far less common than the smaller Bewick's Swan.

The Whooper is now only a visitor to the Færoes, but is generally distributed during the breeding-season in Iceland; and it occa-

sionally wanders to South Greenland, where it used to nest up to Godthaab, 64° N., until exterminated by the natives. In Norway it is seldom known to breed below the Arctic circle, but in Sweden, Finland, and Northern Russia it is found in summer down to lat. 62° N., while, up to 67°, at which Dr. Theel found it on the Yenesei, it can be traced across Siberia to Kamchatka and the Commander Islands. On migration it visits the estuaries and inland waters of Europe, as far south as the Mediterranean, Black and Caspian Seas, while in severe winters it reaches the lakes of Algeria, Lower Egypt, and Palestine; it has once been obtained in Nepal, and occurs in Japan, Corea and China during the cold season.

The nest is a large structure of coarse herbage, and is generally placed on an island in a lake, concealed in willow- or other scrub where such covert is available. The eggs, up to 7 in number, are pale yellowish-white: measurements 4·5 by 2·9 in. Incubation often begins in the latter part of May; and Dr. Palmén states that the young grow so slowly as to be unable to fly until the end of August, or even later. The food consists of the roots and stems of aquatic weeds, and of grass. The note is a loud and trumpet-like *whoop*, *whoop-whoop*, *whoop*, and, when uttered during flight, often forms a rhythmical accompaniment to the strokes of the pinions.

The adult has the entire plumage white, with occasionally an adventitious ochreous tint on the feathers of the head; legs, toes and their webs black. The anterior part of the beak is depressed and black, while the basal portion is quadrangular and yellow; this latter colour extending forward beyond the openings of the black nostrils. Whole length of a male 60 in. (bill 4·2); wing 25·5 in.; weight 22 lbs. The female is smaller. The young bird has the beak of a dull flesh-colour, tipped and margined with black; the upper plumage ash-brown; and the under parts paler as far as the flesh-coloured legs, the vent being white. Fairly adult plumage is attained by the second winter, but the shafts of the feathers on the back are dusky until the next moult.

The Whooper (like all the other species of the genus found in the northern hemisphere—except the Mute or Tame Swan), has a remarkable cavity in the keel of the sternum into which the tube of the trachea passes and forms a parallel loop. In the Mute Swan the keel is single and unprovided with a cavity. Some further remarks will be found at the end of the next article.

BEWICK'S SWAN.

CYGNUS BEWICKI, Yarrell.

This Swan—which is one-third less than the Whooper, and presents noticeable differences in the smaller size and distribution of the yellow patch at the base of the bill—was recognized as a visitor to this country by Yarrell in 1829, and almost simultaneously by R. Wingate of Newcastle. Subsequent experience has shown that Bewick's Swan is of fairly frequent occurrence in severe winters on some parts of the coasts of England and Wales, although rarer than its larger congener; while in Scotland it is sometimes abundant—especially in the Outer Hebrides—and occurs in the Orkneys. All over Ireland, as already remarked, it is far more numerous than the Whooper; Mr. R. Warren writes that on December 17th 1880 more than two hundred were seen together on Lough Cullen, co. Mayo; and during the unexampled frost of 1881 eight hundred were observed at one time on the lake of Castle Gregory in co. Kerry; while even thousands are said to have been counted in other localities. Sir R. Payne-Gallwey states that there is a strong feeling in Ireland—especially in the west—against slaying a Swan, and the majority of fowlers cannot be induced to fire at one.

Bewick's Swan has not been found in Greenland or Iceland, and

it is only an irregular visitor to Norway, though rather more frequent in Finland. Its summer habitat is decidedly more northerly and less westerly than that of the Whooper, no nesting-places being known to the south of about 68°, or to the west of the White Sea, and it was only near the mouth of the Petchora that Messrs. Harvie-Brown and Seebohm obtained the first identified eggs on record. In 1894 Mr. Trevor-Battye found it nesting a little further west, namely on Kolguev Island, where afterwards Mr. H. J. Pearson's party were the first to obtain the young in down; and it occurs in Novaya Zemlya and some other localities in the Arctic Sea. On the Yenesei the late Mr. Seebohm, as well as Mr. H. L. Popham, recognized no other Swan to the north of the Arctic circle; and it ranges eastward to beyond the Lena, but has not been obtained in Kamchatka. In the cold season it visits Japan and China; while in Europe it has occasionally been found as far south as the Mediterranean.

The nest resembles that of the Whooper, but the eggs are smaller than those of that bird, and have rather less gloss: measurements 3·9 by 2·6 in. The note sounds like *tong* or *boong* quickly uttered, and is very different from that of the larger species. The food consists chiefly of aquatic plants.

The adult is pure white; the irides dark; legs, toes and webs black; the distribution of black and orange-yellow on the beak is shown in the illustration. The young bird is greyish-brown, but the white plumage is acquired in the second winter, when the irides are yellow. Length from 46–50 in. (bill 3·5); wing about 21 in.; weight 13 lbs.

An immature Swan shot near Aldeburgh in October 1866 and now in the Ipswich Museum, is, in the opinion of Professor Newton, an example of the American Trumpeter-Swan, *C. buccinator*: a larger species than the Whooper, with a black bill. It has long been naturalized in this country and has repeatedly hatched its young in captivity. Another North-American species which has been stated—on weak evidence—to have been found at long intervals in the shops of Edinburgh poulterers, is *C. columbianus*: a bird smaller than the Whooper, though larger than Bewick's Swan, and resembling the latter in having patches of small size at the base of the bill, though these are of a deep orange-colour. In the adults of our Whooper and the American Trumpeter-Swan the loop of the trachea between the walls of the keel takes a vertical direction, whereas in Bewick's Swan and in *C. columbianus* the bend is horizontal; but in immature birds these distinctions are less marked and more variable.

THE MUTE SWAN.

Cygnus ólor (J. F. Gmelin).

The Mute or Tame Swan is said to have been brought to England from Cyprus by Richard I. ; but be this as it may, the species is now generally distributed throughout the British Islands in a semi-domesticated condition, and of late years it has even been introduced in some of the Outer Hebrides, where it breeds, and the birds fly about as if wild. There is a celebrated ancient swannery at Abbotsbury, in Dorsetshire ; large numbers inhabit the streams and broads of Norfolk ; and the presence of this handsome bird on the Thames and other waters must be familiar to every one. In Ireland it maintains itself on lakes and rivers in many counties, and it has been obtained as far west as Achill Island.

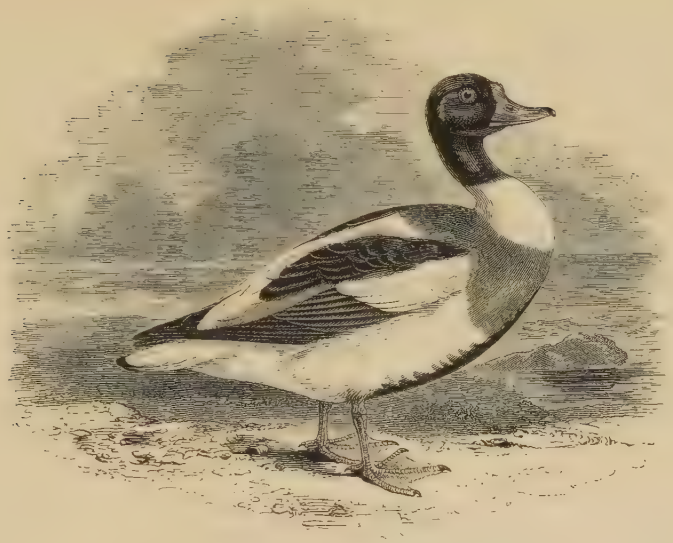
The individuals which are occasionally shot during winter in Britain are often assumed to be some of our home-bred birds which have strayed from their usual haunts ; but such is not necessarily the case, for the Mute Swan still breeds in a perfectly wild state at no greater distance from us than Denmark and the south of Sweden, whence it is forced by cold to migrate in winter ; while in a free (as well as in a half-protected) condition it is found in many parts of Germany, especially in East Prussia. Thoroughly wild birds nest

in considerable numbers in Central and Southern Russia, and on the Lower Danube; sparingly on some of the lakes in Greece; more abundantly in the vicinity of the Black and Caspian Seas, and in Turkestan. In winter the Mute Swan occurs on the waters of the greater part of Europe, and is a regular visitor to the lakes of Algeria and Egypt; it can also be traced through Asia to Mongolia, and to North-west India.

According to the late Mr. H. Stevenson, Swans pair for life, and build a fresh nest each season; this is generally on a small island or peninsula, and is a large structure of reeds or coarse herbage. The females do not lay until their second year—some not till the third or fourth—and commence with 3–5 eggs, but later the clutch sometimes consists of 10–12, which are dull greenish-white, averaging 4 in. by 2·9 in. With wild birds incubation begins in May, but it is earlier in a state of semi-domestication. The young are hatched in about 36 days and are carefully tended by their mother, who frequently carries them on her back, to which she sometimes raises them with her foot, at the same time sinking her body low in the water. The food consists of water-plants (such as *Chara*), aquatic insects &c., also of grain, and bread. The note of the wild bird in pairing-time is loud and trumpet-like, but it is fainter in tame individuals.

The adult male has the greater part of the bill reddish-orange, nail, nostrils, lores and the basal tubercle or "berry" black; plumage white; legs and feet black. Length 56–60 in.; wing 27 in. The female is smaller and has far less tubercle. The cygnet is sooty-grey above, and paler below, with lead-coloured bill and legs.

In the so-called "Polish" Swan, *C. immutabilis* of Yarrell, the cygnets are white, while the adult is said to have a less developed tubercle and ash-grey legs and feet; but neither the late Mr. A. D. Bartlett nor I could find these distinctions in old birds in the Zoological Gardens which had been white as cygnets. With the exception of a bird obtained in Holland in December 1840, few—if any—specimens of the "Polish" Swan are known to have occurred outside the British Islands; and it is now generally considered by ornithologists to be a mere variety as regards the colour of the young. As pointed out by Prof. Newton, white cygnets were noticed on the Trent 200 years ago, while in 1885, 1886, and 1887 a pair of Swans at Cambridge produced broods in which some of the young were abnormally white (Zool. 1887, p. 463; 1888, p. 470); and Count Salvadori states that "none of the characters attributed to *C. immutabilis* are constant" (Cat. B. Brit. Mus. xxvii. p. 38).



THE COMMON SHELD-DUCK.

TADÓRNA CORNÚTA (S. G. Gmelin).

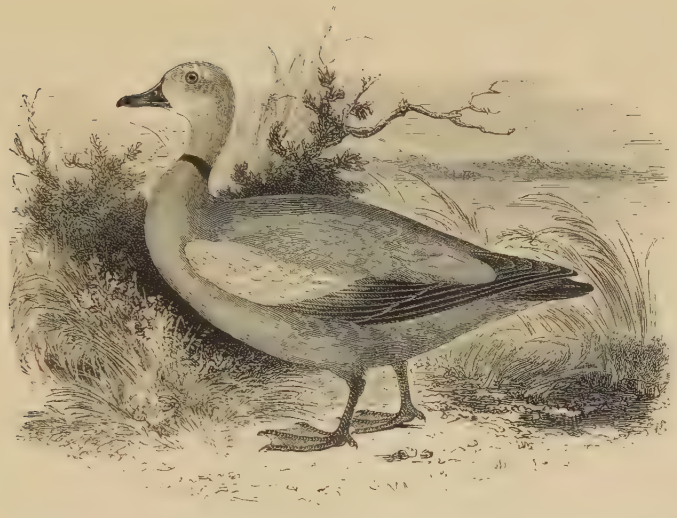
This handsome species frequents, as a rule, salt or brackish water, and is to be found on the coast during the whole year, especially on flat shores, sand-bars and links. In such localities it occurs along the east of England, and also on the west of the island, notably in Wales, though the increase of population and commerce has interfered with it in Lancashire and Cheshire; while in the south a limited number nest in Devon, Somerset, Dorset, and Hampshire. The east side of Scotland, where the bird is an abundant resident, is visited, especially in winter, by large flocks escaping from the cold of the Continent, and although the "Stock-annet," as it is trivially named, is somewhat local on the west and in the islands, it is tolerably numerous during the summer in most of the Hebrides and the Orkneys, and it is said to have nested in the Shetlands. In Ireland it breeds in many counties, especially in Sligo, Mayo, Clare, Waterford and Wexford, becoming more plentiful in winter.

The Sheld-Duck rarely visits the Færoes, and the first record for Iceland was in January 1894. It nests on the coast of Norway up to about 70° N. lat., and is abundant in Sweden, Denmark, the Baltic, the North Frisian Islands and Holland, while it also breeds on the shores of France, and, sparingly, in the Spanish Peninsula; but

to the interior of Europe and the basin of the Mediterranean it is chiefly a migrant or winter-visitor. It is, however, resident in the basins of the Black and Caspian Seas, and is found on the salt-lakes of the temperate—or the elevated—districts of Asia, as far east as Japan; while its winter-range extends southward to the tropic of Cancer.

The nest, made of grass or leaves, and profusely lined with down, is placed at distances varying from a few feet to three or four yards up a rabbit-burrow—whence the name "Burrow-Duck," or at the end of a tunnel (made by the bird) which occasionally forms a nearly complete circle. Sometimes it is in holes in bridges, or among rocks near high-water mark, and, exceptionally, in a dense covert of furze. The 7–12 eggs, laid in May, are of a smooth creamy-white, and measure about 2·75 by 1·9 in. In the Frisian Islands and some parts of Denmark artificial burrows are made by the natives, the eggs being taken up to June 18th, after which the birds are allowed to sit. Incubation lasts from twenty-eight to thirty days, and when the young are hatched they follow their parents, being sometimes carried by the female on her back to the water. The feeding-grounds are mussel-scalps and sandy shores, on which the bird obtains minute molluscs, crustaceans, and marine insects, with sea-weed; but in captivity grain, soaked bread, and vegetables are eaten. The note of the male is a shrill whistle; but the female, which is far more noisy, utters a harsh bark, sometimes followed by several distinct quacks. The flesh is dark in colour, and unpleasant in smell and flavour. In confinement the natural preferences of this species must be consulted, or else it will not breed readily. The prefix "Sheld" is given by Ray (1674) as an East Anglian equivalent for particoloured.

The adult male in spring has the beak and basal knob bright red; head and upper neck dark glossy-green, followed by a white collar, below which is a rich chestnut band; wing-coverts white; wing-spot on the outer webs of the secondaries green; scapulars and primaries nearly black; rump and tail-feathers white, the latter tipped with black; a dark brown line down the middle of the breast and belly, the rest of the under parts white; legs and toes, with the webs, flesh-pink. Length 25 in.; wing 13 in. The female is rather smaller, duller in colour, and has no knob at the base of the bill. The young has the head and neck blackish; face, wing-coverts and all the under parts white; inner secondaries white, edged with chestnut, and with little green on the speculum; beak flesh-colour; legs and feet livid lead-colour. The bird does not breed till it is nearly two years old.



THE RUDDY SHELD-DUCK.

TADORNA CASÁRCA (Linnæus).

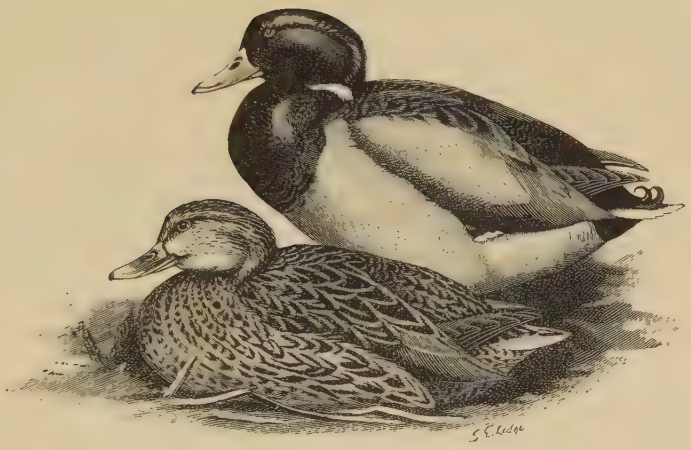
The Ruddy Sheld-Duck was first recorded as a British bird from a specimen now in the Newcastle Museum, killed near Blandford, Dorset, during the severe winter of 1776. The species was long ago introduced on many of our ornamental waters, and some birds shot in Norfolk, Northamptonshire and other places were either known or strongly suspected to have escaped from semi-captivity; though there was less doubt about an example shot from a party of four in Romney Marsh, Kent, on September 8th 1884, as well as a few obtained in Scotland and Ireland. These, however, need not now be specified, for in 1892—a year of very severe drought in south-eastern and southern Europe—the Ruddy Sheld-Duck appeared in such numbers as to preclude any reasonable doubt of a genuine migration. According to the interesting record given by Mr. F. Menteith Ogilvie (Zool. 1892, pp. 392–398), not only single birds, but flocks of 10–15 and even 20 were observed in June and July in several parts of Ireland, the Solway district, and between Sutherland and Norfolk. A few others have subsequently occurred.

This emigration in 1892 did not stop at the British Islands, for some wanderers actually found their way to Iceland and even to Greenland; while solitary examples have been recorded from Norway, Sweden, Bornholm in the Baltic, and Lake Ladoga; but

as a rule the Ruddy Sheld-Duck is almost unknown to the north of the Alps and the Carpathians. Individuals have been obtained near Toulouse in France, and a few breed in the extreme south of Spain, but otherwise the Ruddy Sheld-Duck is rare in the Mediterranean to the west of the Adriatic. Eastward it becomes more abundant, nesting in Macedonia, the Danubian and Black Sea districts, Southern Russia, Tibet and other elevated districts of Asia up to 16,000 ft., and as far as Japan and China. In India, where it is known as the "Brahminy Duck," it is very common during the cold season; while it is resident in suitable localities throughout Northern Africa from Egypt to Morocco. In South Africa it is represented by the grey-headed *T. cana*, and by other forms in Australia and New Zealand.

The nest, well lined with down, is placed in almost any sort of hole: sometimes in the middle of a corn-field, or in a marmot's burrow on the plains, sometimes in clefts of precipitous rocks, the deserted abodes of birds of prey, hollow trees, the fireplaces of abandoned Mongol villages, &c. The eggs, 9–16 in number, are similar to those of the preceding species, but a trifle smaller: measurements 2·6 by 1·8 in. When uttered on the wing the call may be syllabled as *à-oung*, but the usual note is *kark* or *kape*, several times repeated. The Ruddy Sheld-Duck differs from its congener in being partial to fresh-water. Though usually found in pairs during the summer, it is gregarious at other seasons, thousands being mentioned by Jerdon as frequenting the Chilka Lake in April. In its style of walking it resembles a Goose; and it feeds in a similar manner, grazing in fields of young corn and eating grass freely, as well as molluscs and crustaceans. It often breeds in confinement, and has produced offspring with the Egyptian Goose (*Chenalopex ægyptiaca*): that genus is, in fact, nearly allied to the Sheld-Ducks, as indicated by the formation of the trachea.

The adult male in spring has the beak lead-colour; irides yellowish-brown; head, cheeks and chin buff-colour, darkening to orange-brown on the neck—which is encircled by a black ring, (absent from autumn to spring); back, breast and under parts orange-brown; wing-coverts buffish-white; primaries dark lead-grey; secondaries paler, with a brilliant bronze-green wing-spot; rump and tail lead-colour; legs, toes and webs blackish. Length 25 in.; wing 14·5 in. The female is rather smaller and has a whitish forehead; she never has a black collar; and this ornament is also absent from the young male. The young are like the female, but duller in colour.



THE MALLARD.

Ánas bóscas, Linnæus.

The Mallard, or Common Wild Duck, was formerly more numerous in the British Islands than—owing to the progress of drainage and the consequent extension of agriculture—it is at present; yet, thanks to protection, its numbers have increased of late. As a rule it is resident during the year in suitable localities throughout the United Kingdom, but the birds which breed with us are few in proportion to the numbers which annually arrive from the Continent during the cold months; and there are still places where decoys are worked with profit, as shown by Sir R. Payne-Gallwey in his 'Book of Duck Decoys,' to which the reader is referred for information on that interesting subject.

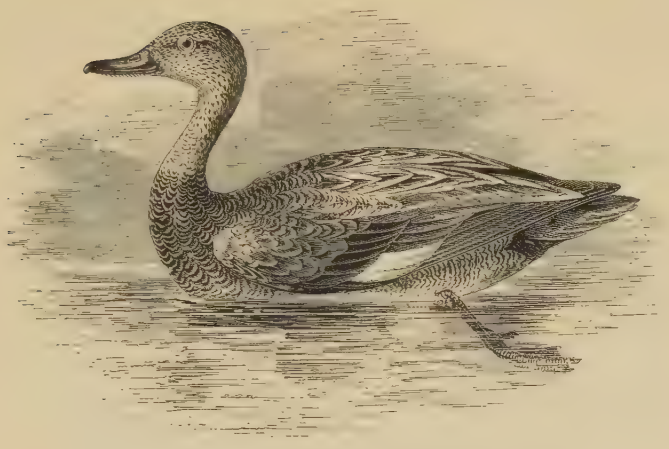
This species visits Greenland, and is abundant during the summer in Iceland; while it is generally distributed throughout Europe south of the Arctic circle, and breeds in suitable localities down to the Mediterranean, as well as in Northern Africa. The range of the migrants from the north extends to the Canaries, Madeira, and the Azores, a few pairs remaining to nest in the last-named group. In Asia the Mallard is found—wherever the water does not freeze for any length of time—from Turkestan to China and Japan; it breeds as far south as Kashmir, and visits India and Upper Burma in the cold season. It inhabits the temperate portions of North America, wintering as far south as Panamá; but in the north-east of that continent its place is in some degree taken by the closely-allied

Dusky Duck, *Anas obscura*, both sexes of which much resemble the female of our bird.

Incubation often begins in the second half of March in the south of England, and a little later even on the bleak moors of Northumberland. The nest, made of grass and lined with down, is usually on the ground near fresh-water, though not infrequently at a distance from it; but grain-fields, hedge-rows, stacks of faggots, forks or hollows of trees, and even the deserted nests of other birds are more or less utilized. The 8–12 eggs are pale greyish-green or greenish-buff: measurements 2·25 by 1·6 in. Two months or ten weeks elapse before the young can fly. In the wild state the Mallard is partially monogamous, but the domestic forms which have sprung from it are all polygamous; and, as remarked by the late Mr. C. M. Adamson, the half-wild breeds get duller in colour, and have coarser feet, while the wings—which in a wild bird reach nearly to the end of the tail—become shorter in proportion to the body. The Mallard is almost omnivorous and strictly a night-feeder.

The male in full plumage has the bill yellowish-green; head and neck glossy-green, followed by a narrow white ring; hind-neck and breast dark chestnut; across the secondaries a greenish-purple wing-spot, fringed above and below with white; rump bluish-black, the four central upper tail-coverts black and up-curled, the rest greyish; belly and flanks greyish-white; under tail-coverts velvet-black; legs, toes and webs orange-red. Length 23 in.; wing 11 in. Towards the end of May the male begins to assume a brown plumage similar to that of the female, but not identical with it, while the bill retains its yellowish tint; the quills are cast simultaneously, so that the bird is incapable of flight; but by the middle of October he has again acquired his full dress. Very old drakes—in semi-captivity at least—lose the white collar, and half-bred birds often do not show it at all. The female is smaller, and has an olive-green bill and dark brown crown, general plumage mottled-brown and buff, alar speculum dark green; the drake's plumage is occasionally assumed. The young at first resemble the female. In a wild state the Mallard not infrequently breeds with the Pintail, and in captivity with almost any Duck; varieties are not uncommon, but albinoes are rare.

Technically the word "Mallard" may be applicable only to the drake, but, on the other hand, "Wild Duck" is vague, and I agree with American ornithologists in employing "Mallard" for this species, and thereby avoiding ambiguity.



THE GADWALL.

ANAS STRÉPERA, Linnæus.

This species is a comparatively rare visitor to the British Islands; but the descendants of a pair of pinioned birds, introduced nearly fifty years ago at Narford Hall, have greatly multiplied on the carefully preserved estates of Lord Walsingham and elsewhere in Norfolk, and have also induced perfectly wild Gadwalls to remain and breed. Except in the above county and one or two spots in the Midlands, this Duck is, however, uncommon; though it may be found in the London markets in spring and occasionally in autumn. Its occurrence has been recorded in Radnorshire and Breconshire, Cardiganshire and Pembrokeshire, but in the west of England it is rare at any time of year. In Scotland it is now and then met with on the east, while in the west and in some of the Hebrides it is not infrequent, and is even abundant on Tiree in winter; and it is an occasional visitor to the Orkneys. In Ireland its distribution is irregular, but the bird appears to be more numerous than is supposed, especially in the west.

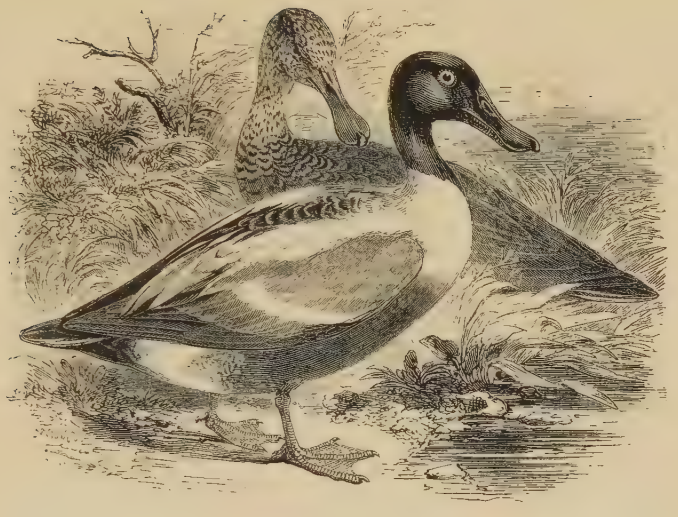
The Gadwall breeds sparingly in the My-vatn district of Iceland; and, though not known to nest in Norway, it does so rather freely in the south-east of Sweden, while there is evidence that it has been found in Russia as far north as Archangel in summer. In Holland, Belgium and France it chiefly occurs on migration and in winter; but in Spain it undoubtedly nests near the mouth of the Guadalquivir, while throughout the basin of the Mediterranean it is not

uncommon during the cold season in suitable localities, such as rush-grown lakes and pools; its migrations extending to the inland waters of Northern Africa and up the Nile valley to Nubia. To Northern Germany it is chiefly a summer-visitor, becoming more abundant in Central and Eastern Europe; while in Asia up to 60° N. it is met with as far as the Pacific, and it is one of the most plentiful species in Northern India during the cold season. Across North America it is generally distributed, passing southward to the West Indies and Mexico in winter.

The nest, made of grass and lined with down, is generally in a dry place at a little distance from the water; the eggs, 8–13 in number, are of a buffish-white: measurements 2·1 by 1·5 in. The Gadwall is a lover of fresh-water, and much addicted to concealing itself among thick reeds and aquatic herbage. Its migrations are nocturnal, and it also feeds by night—chiefly on seeds, grain (rice in India), and other vegetable matter; consequently its flesh is excellent. The call-note is a curious rattling croak.

The adult male in spring has the head and upper neck greyish-brown with darker mottlings; back with crescentic markings of light grey on a dark ground; median wing-coverts *chestnut*, greater coverts almost black; primaries brown; secondaries brown and black—the outer webs forming a *white* wing-spot; inner secondaries pointed and of two shades of brownish-grey, the darker colour occupying the centre of each feather, the lighter colour forming the margin; rump and upper tail-coverts bluish-black; tail-feathers dark brown, with paler edges; lower neck dark grey, each feather with lighter crescentic margins; breast and belly white; flanks and vent marbled with two shades of grey; under tail-coverts bluish-black; bill blackish; legs, toes and webs dusky yellow-orange. In summer an approach to female plumage is made. Length 20 in.; wing 10·5 in. The female has the head and upper neck spotted with dark brown, on a paler surface; the crescentic bands on the lower part of the neck alternately dark and light brown, but broader than in the male, under parts white; feathers of the lower hind-neck and upper parts brown, with paler margins; wing-spot *white*, as in the male; tail-feathers dark brown, with pale edges; under tail-coverts spotted. The young are of a more uniform reddish-brown colour above, speckled with dark brown; the middle of each feather also is dark brown; and the characteristic white wing-spot is always present.

Owing to the pronounced developement of the comb-like "teeth" of the bill, this species has been made the type of the genus *Chaulelasmus*.



THE SHOVELER.

Spátula clypeáta (Linnæus).

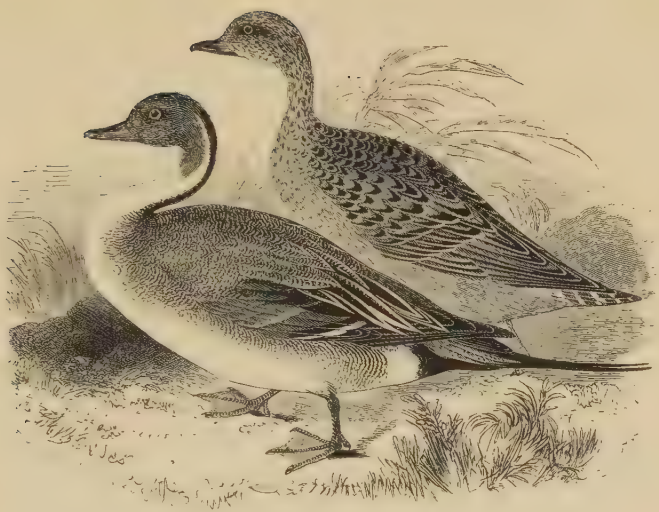
This species—sometimes called the "Spoon-bill" or "Broad-bill"—is chiefly a visitor to this country during cold weather; but since the Act for the Preservation of Wild Fowl was passed in 1876 increasing numbers have remained to breed with us, though less frequently in our southern and western counties, where localities suited to their habits are few. It nests regularly in some parts of Norfolk and Lincolnshire, and sparingly in Yorkshire, Durham and Northumberland; while in Nottinghamshire and some parts of the Midlands it is becoming more abundant; and, though rarer in Wales, and on the west side of England, a few pairs inhabit the marshes on the Cumberland side of the Solway. In Scotland it nests in Kirkcudbrightshire, Roxburgh, and some other southern counties, but its principal breeding-haunts are between the Forth and Tay, while nests have been found up to Sutherland and the Orkneys, as well as on Tiree in the Inner Hebrides, though the bird is almost unknown in the Outer islands (W. Evans). In Ireland it is not uncommon in the south, and nests freely in Queen's Co., Lough Derg on the Shannon, Lough Portmore in co. Antrim, in co. Dublin, and other localities.

In summer the Shoveler seldom goes further north than the Arctic circle, but from Denmark, the Baltic, and even Archangel south-

ward, it nests down to the African side of the Mediterranean, where numbers of migrants appear in winter, and some visit the Canaries. In the cold season the Shoveler is abundant in Egypt and Nubia; it is even said to be resident in the elevated regions of Abyssinia; and its migrations extend to Cape Colony. Across Asia south of 68° it is found in suitable localities, visiting India, China, Japan, the Malay Archipelago, Australia, and even the Gilbert Islands during cold weather; while in America this widely-distributed species breeds from Alaska to Texas, wintering as far south as Panamá.

The nest is usually on dry ground, among heather, rank vegetation or tufts of sedge, and is made of fine grass, with a lining of down plucked by the female from her body after she begins to sit. The eggs, 8–14 in number, are of a pale greenish-buff colour: measurements 2 by 1·4 in. The note in pairing-time may be syllabled as *took, took*; otherwise the bird is comparatively silent. The Shoveler feeds on grasses, worms, slugs, snails, aquatic and other insects, and small crustaceans; its flesh is well-flavoured, rivalling that of the Gadwall or the American Canvas-back. With all Ducks, however, diet is an important factor, and even a Canvas-back, when it has not been feeding on the succulent *Vallisneria* so abundant in the Chesapeake river, is a very ordinary bird for the table. In confinement the Shoveler has bred with the Garganey.

The adult male has the bill lead-colour, dilated towards the tip; irides yellow; head and upper neck green; lower neck and scapulars white; feathers of the middle-back dark brown with paler margins; shoulders pale blue; greater wing-coverts white; secondaries dark brown with a *green* wing-spot; primaries, rump, upper tail-coverts and tail-feathers almost black; breast and belly rich chestnut; flanks freckled with dark brown on a paler ground; vent white; under tail-coverts black; legs, toes and webs reddish-orange. Length 20 in.; wing 9·5 in. In summer the drake assumes a dress approaching that of the duck, but more rufous, and the blue on the wing-coverts is not lost. The female has the head and neck mottled with two shades of brown; the feathers of the upper parts dark brown in the centre, with lighter edges; under parts pale brown; irides brown. The young drake at first resembles the mother-bird. The nestling has a proportionately longer, narrower, and more slender bill than the young Mallard or Gadwall, but at the age of three weeks there is an obvious increase in length and breadth, especially in drakes.



THE PINTAIL.

DÁFILA ACÚTA (Linnæus).

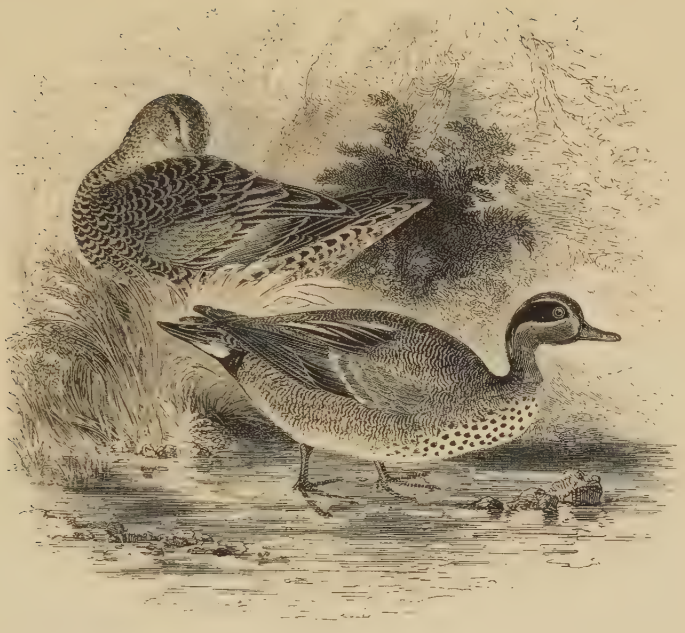
This slender and elegant Duck—locally known from the length of its tail as the "Sea Pheasant"—is a regular visitor to Great Britain, from September onwards. In the northern districts it seldom lingers long, while its numbers on the east coast are subject to considerable variation, and on the west it is rather uncommon; its principal resorts being our southern shores and estuaries, though its appearance on inland waters is not unusual. As a rule the Pintail leaves us in April; but in the east of Scotland it has now established itself as a breeding-species, six or seven pairs of birds and four of their nests having been discovered on Loch Leven this summer by Mr. W. Evans (Ann. Scott. Nat. Hist., 1898, p. 162). In the west the Pintail is rare, though there is some evidence that it has bred in the Hebrides, and it is uncommon in the Orkneys and Shetlands. To the south and west of Ireland it is a winter-visitor, and it is said to have nested, exceptionally, at Abbeyleix in Queen's County, but on the whole it is local and not numerous. In spring its numbers are increased by migrants from the south.

The Pintail has nested in the Færoes, and is generally distributed in Iceland during the summer months, sometimes wandering to Greenland. It breeds abundantly in the northern portions of Europe; in tolerable numbers in Holland; and, decreasingly, down

to lat. 50°; while Messrs. Eagle Clarke and Laidlaw found pairs, apparently nesting, in the Rhone delta. During the cold season it is found over the rest of the Continent, as well as in Northern Africa, Egypt, Asia Minor, the Indian region as far south as Borneo, China and Japan; its summer-range northward in Asia extending up to lat. 72° on the Yenesei (Popham). In America also it has been met with up to 72° N. lat. in Alaska, and thence eastward to Labrador; its winter migrations reaching to the West Indies and Panamá.

The nest—generally placed among coarse herbage in a dry situation, and often at a little distance from water—is deep and well lined with down; the eggs, 7–10 in number, being pale buffish-green in colour and rather elongated in form: measurements 2·1 by 1·5 in. Incubation commences in May or June, according to the locality. In winter this species resorts to salt-water estuaries; or to large open sheets of fresh-water, in the shallow portions of which it finds succulent plants (and wild rice abroad), as well as insects and their larvæ, and small molluscs; its flesh is therefore excellent in flavour. It feeds with its head below the water, its long tail being then raised in the air, and it is notoriously partial to the company of Wigeon. By day it is rather a silent bird, but it utters a low-toned quack at night, and in the pairing-time a short double whistle. In confinement it breeds freely, and has been known to pair with the Wigeon; an interesting case is also on record of a male Pintail and a Common Duck producing young half-breeds which had offspring again by the father, while the three-quarter birds bred again with the pure species. Its frequent hybridization with the Mallard in a wild state has already been mentioned; the half-bred drake being a remarkably handsome bird.

The adult male in spring has the head brown, shading into greenish-black on the nape; upper neck bronze, with a white stripe down the neck on each side and meeting the white breast and belly; back and flanks mottled grey; greater wing-coverts buff, followed by a *bronze-green* wing-spot margined with black and white; tail black, the two central feathers much elongated; under tail-coverts black; bill, legs and feet chiefly slate-grey. In July a plumage like that of the female is assumed, and is retained until October, but the bronze-green wing-spot is always present. Whole length 26–29 in. (the central tail-feathers being sometimes 8·5 in.); wing 11 in. The female is mottled-brown above and greyish-white below; the long slender neck, greenish-bronze wing-spot, and the oblique buffish bars on the brown tail-feathers sufficing to distinguish her from any other species. The young are like her in their first plumage.



THE TEAL.

NETTION CRÉCCA (Linnæus).

It is chiefly between September and the following spring that this, the smallest of our indigenous Ducks, is really abundant throughout the British Islands; but it nests, sparsely, throughout the south of England, and even occasionally along the valley of the Thames. In the eastern counties it is a fairly numerous breeder, while north of the Trent it becomes more frequent; and it finds suitable retreats in the Welsh bogs, as well as in the 'mosses' of Lancashire and Cumberland. Except in the Outer Hebrides, where it is rare even in winter, it is a widely distributed breeding-species in Scotland, including the Orkneys and Shetlands. It breeds in every county of Ireland, where a great influx takes place during the cold season.

During summer the Teal is common in Iceland and the north of Europe, while a few pairs nest locally as far south as the Mediterranean, and even in the Azores. In cold weather it is found all over the Continent wherever fresh-water does not freeze for any length of time; it visits Madeira, the Canaries and North Africa; is numerous in Egypt; and goes as far south as the highlands of

Abyssinia. It is distributed over Asia, from 70° N. in summer to Siam in winter; in all probability it breeds on the islands of the Aleutian chain, and it has been obtained in Alaska in June. Throughout North America, however, its representative is *N. carolinense*, the subject of the next article; but our Teal is an occasional wanderer to the eastern seaboard, from Labrador down to North Carolina; and has been obtained in Greenland.

The nest—placed in tufts of heather or herbage, or under low bushes on the borders of morasses and pools—is composed of dry grass and leaves, to which a lining of down is added during the progress of incubation. The 8-10 and even 15 eggs, usually laid early in May, are buffish- or creamy-white with a faint tinge of green: measurements 1·8 by 1·2 in. Many instances are on record of the affection of this bird for its brood, and a female has even been known to follow her ducklings into captivity. The food, obtained by night, on or near fresh-water, consists chiefly of the seeds of aquatic grasses, grain, rice (in warm countries), worms, slugs and insects. The Teal has repeatedly bred in the Gardens of the Zoological Society and elsewhere; while in the wild state hybrids between it and the Gadwall, as well as the Wigeon, are sometimes produced; one of the latter being the "Bimaculated Duck" of some authors.

The adult male has the bill blackish; crown, nape, cheeks and throat rich chestnut; round and behind the eye an elongated patch of purplish-green enclosed within narrow lines of buff, while a stripe of the latter colour runs from the forehead to the base of the bill; upper parts delicately vermiculated with black and white; on the secondaries a wing-spot of green and purplish-black, tipped with buff; rump and tail-coverts almost black; tail-feathers ash-brown; chin black; front of neck spotted with black on a warm buff ground; breast and belly white; flanks delicately vermiculated with black and white; under tail-coverts black in the centre and warm buff on each side; legs and toes brownish-grey. Length 14·5 in.; wing 7·25 in. From the middle of July till October the drake is in female dress, and I have found brown feathers on the back as late as December. The female is mottled with brown on the upper parts, and has a less brilliant wing-spot. The young resemble her, but have darker centres to the under feathers and paler edges to the wing-coverts.

The North American Summer-Duck, *Aix sponsa*, is kept and breeds freely on many ornamental waters, and wanderers are sometimes shot.

THE AMERICAN GREEN-WINGED TEAL.

NETTION CAROLINÉNSE (J. F. Gmelin).

An adult male of this species was shot on November 23rd 1879 on an arm of the Kingsbridge estuary, South Devon; and was exhibited by me on behalf of its owner, Mr. H. Nicholls, at a meeting of the Zoological Society on December 4th 1888. In 'The Zoologist' for 1852, Mr. (now Colonel) John Evans recorded the occurrence of an adult male near Scarborough in November 1851; a specimen which passed into the collection of the late Lord Hill. Mr. Arthur Fellowes stated (Zool. 1880, p. 70) that he possessed an example shot by his father 'more than forty years ago' at Hurstbourne Park, Hants, and he correctly described the essential feature of its plumage. The species has never been kept in the Gardens of the Zoological Society of London, nor, as far as I am aware, in any other part of Europe up to the present (July, 1898).

The Green-winged Teal, so called to distinguish it from the Blue-winged representative of our Garganey in America (the subject of the next article), is generally distributed over the northern portions of the New World in summer, and also visits Greenland; while in winter its migrations extend to the Bermudas and West Indies, Mexico and Central America. Its nidification and general habits resemble those of our Common Teal; and owing to the superior quality of its food, which consists of rice, wild oats, fallen grapes &c., its flesh is remarkably delicate. The eggs, 7–12 in number, are buffish-white: measurements 1·8 by 1·25 in.

The adult male differs from our Teal in having a broad crescentic band of finely vermiculated greyish-white feathers on each side of the breast in front of the folded wing, while the buffish-white lines which run from the beak to and round the green eye-patch are very slightly defined; the pencilling of the whole plumage also is more minute. Length 14·5 in.; wing 7·25 in. The female so closely resembles that of our Teal that I am unable to give any specific characters.

THE BLUE-WINGED TEAL.

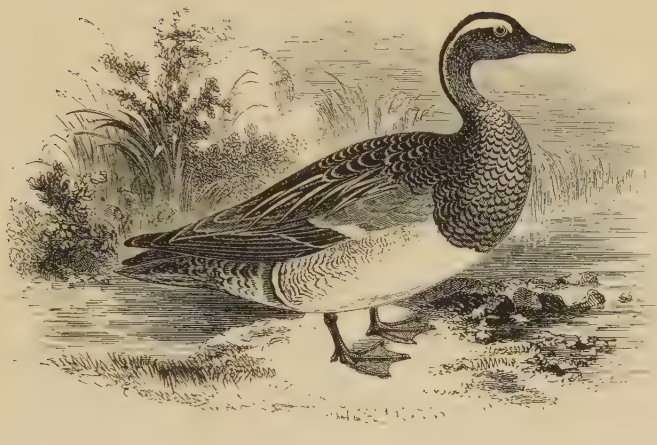
QUERQUÉDULA DÍSCORS (Linnæus).

In 'The Naturalist,' viii. (1858), p. 168, Mr. W. G. Gibson, writing from Dumfries, says, without naming any month, "a specimen of the Blue-winged Teal (*Anas discors*) was shot here a few weeks ago." This bird, erroneously stated by the late Mr. R. Gray to have been killed in January 1863, afterwards passed into the collection of the late Sir William Jardine, and was subsequently acquired by the Edinburgh Museum; it is a male and undoubtedly genuine. The same cannot be said for the bird recorded under this name in 'The Zoologist' for 1882 (p. 92), which is an immature male of our Garganey.

According to Mr. Oluf Winge, an adult male was shot near Säby in Denmark, about the middle of April 1886. I am not aware that this species has yet been introduced on ornamental waters in Europe; for the bird mentioned in my 1st Edition (p. 422), as having been sent from Tours, proved to be the Cinnamon Teal, *Q. cyanoptera*.

The Blue-winged Teal has a more southern habitat than the preceding, being seldom met with north of lat. 60°, while it is very local on the Pacific coast. It breeds, in suitable localities, from Labrador to Florida, and from the Saskatchewan to Mazatlan, as well as abundantly in the Mississippi valley; and in winter its migrations extend to the Bermudas, Mexico, the West Indies, and Guatemala. The eggs, 8–12 in number, are pale buff: measurements 1·85 by 1·35 in. The food and habits do not differ materially from those of the preceding species.

The adult male has the throat, forehead and crown dark lead-colour; in front of the eye *a long crescentic patch of white*; cheeks and neck dull lavender-grey; back mottled with reddish-buff; lesser wing-coverts lapis-lazuli blue (far more vivid than in our Garganey); on the wing a white bar, followed by a bronze-green patch; under parts pale reddish; bill black; feet yellowish. Length 16 in.; wing 7·5 in. The female is mottled with dull brown and buff, and has only an indistinct eye-stripe.



THE GARGANEY.

QUERQUÉDULA CÍRCIA (Linnæus).

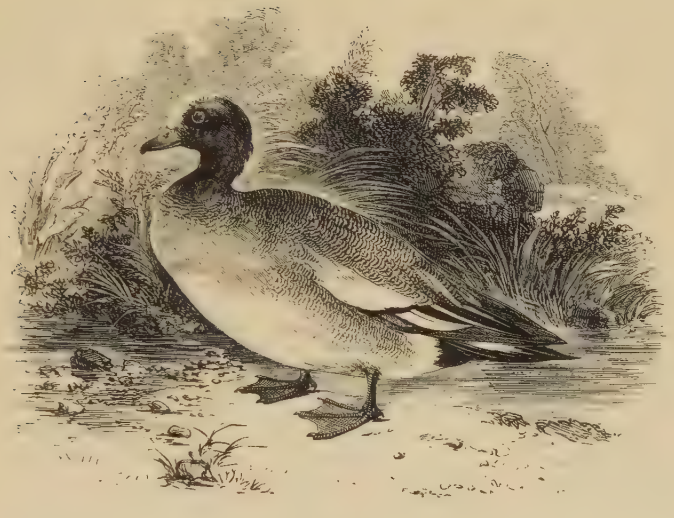
This very local species visits England early in March, and, if unmolested, remains in a few suitable spots to breed (whence it is often called the Summer-Teal); while it is again observed on the migration southward in autumn. It nests regularly in the 'broad' district and other parts of Norfolk—where, owing to protection, it is on the increase, also sparingly in Suffolk, probably in Warwickshire, Hants, and some other counties; visits Lincolnshire in April; has been found nesting in Holderness, Yorkshire; and used to breed in Northumberland before the drainage of Prestwick Car. Elsewhere its occurrences are irregular, and in Wales and the west they are decidedly infrequent. The same may be said of the mainland of Scotland, and its visits to the Orkneys and Shetlands, as well as to Barra in the Outer Hebrides, are exceptional. In Ireland, Mr. Ussher informs me that he has records of twenty-six occurrences between January and August, but chiefly during March and in the south and west.

The Garganey seldom visits the Færoes or even the south of Norway, but it breeds rather plentifully in Denmark, Sweden up to about lat. 60°, Finland, and Russia as far as Archangel; while it is very abundant in East Prussia, and generally distributed in summer throughout the rest of Europe, especially in the east, down to the Caspian, Black and Mediterranean Seas, though of irregular occurrence in

the western portion of the Spanish Peninsula. It is, however, during the cold season that it is most abundant in the south; its winter migrations reaching to North Africa, Egypt, Somaliland, and portions of Arabia. In Siberia Mr. Popham obtained it as far north as Yeneseisk, and eastward it reaches Kamchatka and the Commander Islands; while it is common down to the Himalayas in summer, and very abundant during winter in India (where it is known as the Blue-winged Teal); and it also occurs sparsely in Japan, the Philippines, China and the Malay Archipelago.

The nest is sometimes placed among rough herbage, or in sedge intermixed with coarse grass; but also in heather, and in high, fairly-drained—as well as open—situations. Laying begins in the latter half of April or early in May, and the eggs, usually 8, though sometimes as many as 13 in number, are more creamy than those of the Common Teal, with no tinge of green: measurements 1·85 by 1·35 in. The food chiefly consists of small fish, aquatic insects and molluscs, with little vegetable matter, and the bird is not, as a rule, good for the table. Its usual note is a harsh *knack*, but in spring the drake makes a peculiar jarring noise, like a child's rattle, whence the name of "Crick" or "Cricket-Teal" in East Anglia. This bird is rapid in its flight, and when swimming sits very high in the water.

The adult male in March has the forehead, crown and nape dark brown, with a white stripe on each side from the eye and ear-coverts to the back of the neck; cheeks and neck nutmeg-brown, varied with short hair-like lines of white; back dark brown; elongated scapulars black with a central stripe of white; *wing-coverts bluish-grey*; patch on the secondaries green between two white bars; primaries and tail dull brown; chin black; breast pale brown, with dark crescentic bands; belly white; flanks varied with transverse black lines bounded by two broad bands; under tail-coverts mottled black and white; bill black; legs, toes and webs greenish lead-colour. Mr. J. H. Gurney states that the male Garganey remains for an unusually long period in the plumage of the female. Length 16 in.; wing 7·8 in. The female is smaller, and has the head brown with darker spots and lines; over the eye a light yellowish-white band; mantle dark brown with rufous edges; wing-coverts greyish-brown; speculum dull metallic-green between two bars of white; chin white; breast varied with two shades of brown on a surface of greyish-white; sides and flanks pale brown, varied with darker brown. Young males in their first plumage, as usual, resemble females.



THE WIGEON.

MARÉCA PENÉLOPE (Linnæus).

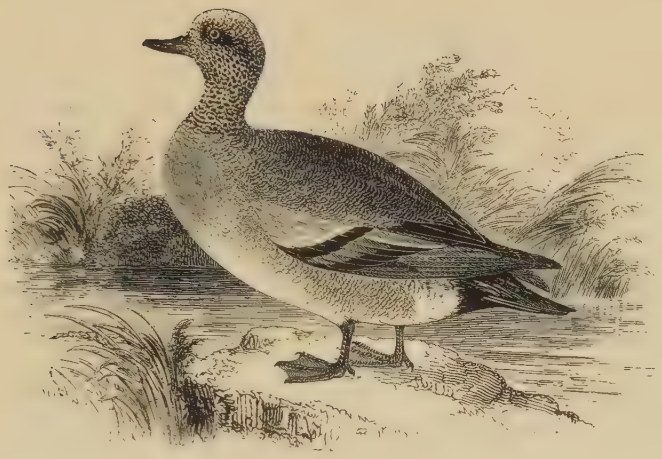
Small parties of Wigeon begin to make their appearance on our coasts about the end of August, but the bulk of the immigrants arrive from the middle of October onwards, and immense numbers are often to be found in sheltered bays and tidal waters until the end of February, while in March and April the return migration from the south sets in. In Scotland the Wigeon has long been known as a partially resident species, breeding in some numbers over the greater part of Sutherland, and sparingly in Caithness, Ross and Cromarty, while eggs have been taken in the Orkneys and Shetlands, and of late Perthshire and Selkirkshire have been added to its nesting-area. In 1897 a nest was found near Scarborough, and there is presumptive evidence that the bird has bred exceptionally in the very south of England. In Ireland it is common during the colder part of the year, and it seems possible that a few pairs may nest in cos. Fermanagh and Tyrone (Ussher).

This Duck is a summer-visitor to the Færoes and Iceland, occasionally wandering to Greenland. It is very abundant in Scandinavia and Finland, but Kolguev and Waigats (70° N.) are about its limits; while it breeds in Russia as far south as Ekaterinburg; and sparingly in Denmark, Holland, and Northern Germany. On

passage it visits the rest of Europe, going as far west as the Azores; and in Africa it is found down to Abyssinia. In Asia its range extends from about 71° N. to Mongolia in summer, and in winter over the rest of that continent and its islands down to Borneo; a specimen has even been obtained in the Marshall group, Polynesia. From Siberia we trace this species across Bering Sea, by way of the Aleutian Islands, to Alaska; and it is not infrequent on the coast of California, while in the east portion of the United States it occurs almost every winter, especially between Virginia and the Carolinas.

The nest, placed in a tuft of rushes, coarse herbage or heather, is warmly lined with down, and may contain from 7–10 cream-coloured eggs: measurements 2·3 by 1·5 in. On their arrival the birds, when undisturbed, feed by day on aquatic plants and grass, but after November they become nocturnal, and subsist largely upon *Zostera marina*. The call-note of the male is a shrill whistling *whēē-yoŭ*, whence the local names "Whew Duck" and "Whewer"; but the female utters a low *purr* or croak; while both sexes rise in silence. Although it is a surface-feeder and does not dive for food, the Wigeon can submerge itself easily and turn rapidly under water when wounded and pursued. No other species offers such attractions to the punt-gunner; and it is taken in large numbers in those of our decoys which, as in Essex and in Pembrokeshire, are situated near the sea, though flocks sometimes resort to waters as much as 30 miles inland. In confinement it breeds occasionally, though not very freely; and it has been known to cross with the Pintail, Mallard, Gadwall and Teal.

The adult male has the forehead and crown buff; cheeks and hind-neck chestnut, minutely spotted with bottle-green; chin black; throat and upper neck chestnut; breast white passing into grey on the under parts, the flanks being pencilled with dark grey; mantle chiefly of a finely vermiculated grey; shoulder white with a terminal bar of black, followed by a *green* wing-patch tipped with black below; quills and tail dark brown; bill bluish-lead colour; legs and toes dark brown. Early in July a plumage like that of the female is assumed, but the tints of the drake are always the brighter. Length 18·5 in.; wing 10·5 in. The female is smaller; the upper parts are mottled with greyish-brown, and the shoulders nearly white; the wing-patch is greyish-green, and the under parts are buffish-white. As usual, the young bird resembles the female; the latter occasionally assumes nearly full male plumage.



THE AMERICAN WIGEON.

MARECA AMERICÁNA (J. F. Gmelin).

The occurrence of this bird in a London market during the winter of 1837–8 was thus noticed by Blyth, in the third volume of N. Wood's 'Naturalist,' p. 417:—"The American Wigeon is a novelty which was obtained by Mr. Bartlett. He selected it from a row of Common Wigeons, deeming it, at the time, to be only an accidental variety of the species; there was a female along with it, which, after some hesitation, he unfortunately left, considering it only as a variety, but insufficiently diverse to be worth preserving; he has since, however, positively recognized the female of the American Wigeon to be identical with the bird he thus passed over hesitatingly in the market." This specimen—a male—is now in the collection of Mr. J. H. Gurney, and we may fairly assume that it was really taken in this country. Thompson believed on hearsay evidence that one, not preserved, was killed in February 1844 on Strangford Lough near Belfast; Thomas Edward, of Banff, has enumerated, among his many unauthenticated rarities, another, shot on the Burn of Boyndie in January 1841, but afterwards thrown away; while two records in 'The Zoologist' are so utterly unsubstantiated as to be unworthy of serious consideration. In February 1895, however, Sir Ralph Payne-Gallwey obtained in the flesh a young male, which had been recently selected from a number of

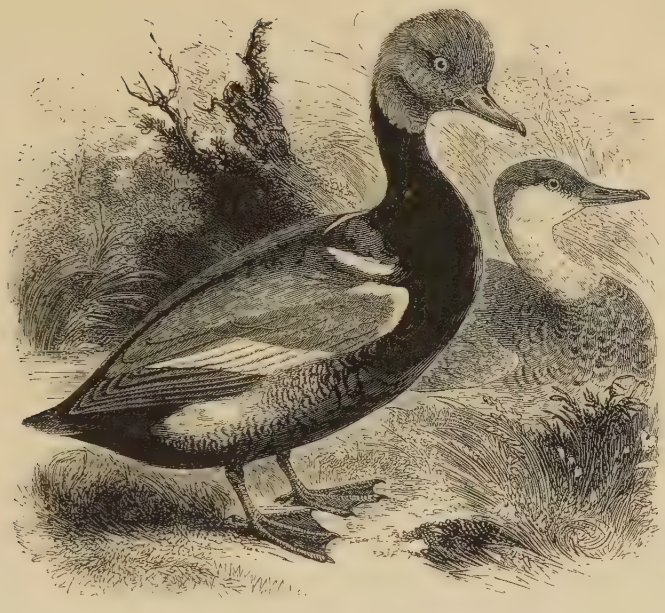
Common Wigeon at a Leeds game-stall, and its portrait appears in the late Lord Lilford's 'Coloured Figures of British Birds.'

In France, according to MM. Marmottan and Vian, a female, now in the collection of the former, was taken at Le Crotoy, Somme, on April 13th 1875; and Mr. O. H. Howarth has informed me of a specimen in a collection at St. Michael, Azores. Dr. L. Stejneger has stated that a very lean and moulting female was found dead on Bering Island on May 1st 1883.

In North America this Wigeon is found in summer from Alaska eastward throughout the Fur-countries to Hudson Bay; and on migration it occurs over the greater part of that continent, being numerous on the Chesapeake, where, like the Canvas-back, it feeds on the *Vallisneria*. Audubon says that it is abundant during winter at New Orleans, where it is much esteemed on account of the juiciness of its flesh, and is best known by the name of "Zinzin." In the West and in most parts of the Eastern and Middle States it is called "the Bald Pate." It frequents the rice-fields of the South, wanders to the Bermudas, and is an annual winter-visitor to Mexico, the West India Islands and Central America.

The nest of this species is stated by Kennicott to be always on high dry ground, among trees or bushes, at a considerable distance from water; it is a comparatively small depression among the dead leaves, lined with down, and contains from 7–10 ivory-white eggs, measuring 2·1 by 1·5 in. The note is a soft, gentle whistle.

The adult male has the forehead and crown dull white; a broad *green* streak passing backward from the eye; cheeks and neck whitish, freckled with black; mantle brownish-grey vermiculated with black; lesser wing-coverts white, and the greater ones tipped with black; on the secondaries a green patch; tail greyish-brown; upper breast to flanks mottled reddish-brown; belly and vent white; bill black at the tip, the rest greyish-blue; legs and feet bluish. In younger males the plumage is duller, and the soft parts are darker in colour. Length 19 in.; wing 10·5 in. The female has the head and neck yellowish-white speckled with black (decidedly whiter than in our Wigeon), very little rufous on the breast, and a dark brown back. The young are much like the females in the first season, but in the drakes the wing-pattern is better defined and the colours are more pronounced.



THE RED-CRESTED POCHARD.

NETTA RUFÍNA (Pallas).

The Red-crested Pochard is a southern and eastern species which was first noticed as a wanderer to the British Islands by J. Hunt, who figured a female killed in Norfolk in July 1818; and eight or nine examples have since been obtained in that county, chiefly in winter. Others have been taken along the east coast between Berwick-on-Tweed and the mouth of the Thames; Devon and Cornwall have each contributed one; there is a specimen in the British Museum from Pembrokeshire; and a male was shot on October 9th 1897 in Westmoreland. In Scotland one was obtained in Argyllshire in January 1862; in Ireland one in co. Kerry on January 18th 1881.

This Pochard seldom occurs on the waters of Denmark, Northern Germany, Holland or Belgium, while in Switzerland it is chiefly found on the lakes of the eastern cantons; but though rare in the north of France, it is not uncommon in the Rhone delta, where Messrs. W. E. Clarke and T. Laidlaw found it breeding. In the Spanish Peninsula it is almost confined to the lakes on the east side and those in the Balearic Islands. In the southern half of Italy it

is not uncommon, and more than two centuries ago Willughby obtained it in the market at Rome, while it is also resident in Sicily and Sardinia. It breeds in small numbers in Central and Southern Germany; more frequently along the valley of the Danube, and abundantly in some parts of South Russia; while in winter it is found throughout the basins of the Mediterranean, Black and Caspian Seas. In Africa it nests in many of the lakes to the north of the Sahara, though very rare in Egypt. In Asia its summer-haunts are in Northern Persia, and Turkestan as far east as the Lob-nor, but do not reach Siberia; its winter-range extends to Northern and Central India (where thousands are sometimes seen on large sheets of water), and occasionally to China. A young male was found in the New York market on February 2nd 1872.

Mr. W. E. Clarke describes a nest found in the Camargue on May 17th as placed in the centre of a dense mass of purslane, and consisting of a broad rim of down, with a few short tamarisk twigs: it contained 10 fresh eggs. These are clear pea-green in their colour (which soon fades): measurements 2·3 by 1·6 in. The food—obtained very largely by diving—consists of water-weeds, frogs, small fish, insects &c.; the flesh of this bird is generally held in high estimation. The call-note, seldom heard by day, is a deep grating *kurr*, but occasionally the male utters a sort of whistle.

The adult male in spring has the beak crimson, with a paler nail; irides reddish; crown and erectile crest golden-bay, rest of head and upper neck vinaceous-chestnut; throat, lower neck, breast and belly brown-black; flanks white, with a tinge of salmon-pink; mantle yellowish-brown; lesser coverts and a band across the secondaries white, with a greyish border to the inner secondaries; primaries brown at the tip, and whitish above; tail-feathers ash-brown; legs and toes vermilion-red; webs blackish. In less mature birds the soft parts are duller in colour. Length 22 in.; wing 10·5 in. The female has no crest, and the top of the head is dark brown; the cheeks and throat are greyish-white; the upper and under parts pale rufous to greyish-brown; the point of the shoulder and the wing-patch dull white; the beak and legs dull red. Young drakes at first resemble the females, but the crest and the red colour of the bill soon become apparent.

This species is the type of the genus *Netta*, Kaup, which differs from *Fuligula* in having 16 tail-feathers in place of 14, a longer bill, and some other points. Like the rest of the group of Diving Ducks, it has a broadly lobed hind-toe. In adopting *Netta* I have followed Count Salvadori, Dr. W. T. Blanford and others.

THE COMMON POCHARD.

Fulígula ferína (Linnæus).

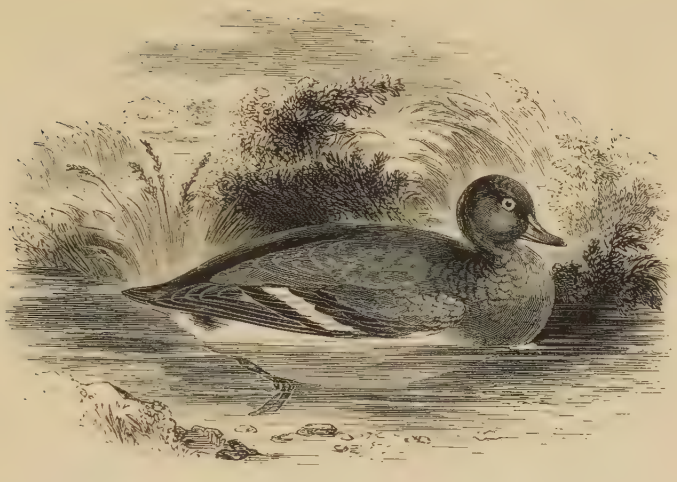
This species is also known by the names "Red-headed Poker" or "Red-eyed Poker" in the case of the male, while that of "Dun-bird" is usually, but not exclusively, bestowed upon the female or the young. The Pochard is in the main a cold-weather visitor to England, though very irregular both as regards numbers and localities. It usually appears early in October and leaves again in spring; but a good many now remain to breed on some of our inland waters, where, owing to efficient protection, they have increased of late. Such is the case at Merton and in other parts of Norfolk, at Hornsea Mere in Yorkshire, in Lancashire, Dorsetshire, Hertfordshire, and some localities which need not be named. In Scotland this species is generally distributed, except in the Outer Hebrides, though it breeds in Tiree; and it nests in Ross, Moray, Perthshire, Fifeshire, Roxburghshire, and in the Orkneys; visiting the Shetlands. In Ireland it is widely distributed over inland waters in winter, and there is evidence that it has nested in many counties.

The Pochard is only a wanderer to the Færoes and Iceland, while it is not common in any part of Scandinavia; but in Russia it breeds as far north as Lake Ladoga, and southward to the Caspian.

A tolerable number nest in Denmark, Germany, Poland and suitable localities throughout the rest of Europe, sojourning on the lakes of the High Alps on their way to the Mediterranean, to which, and to North Africa as far as the Egyptian lakes, large flocks resort in winter; while a few visit the Canaries. Eastward, the Pochard extends in summer across temperate Asia to the Baikal district, but not further north; and southward in winter it reaches Japan, China, and India down to lat. 15° N. In America the representative is a closely-allied species, *F. americana*, with no black at the base of the bill, greyer back, and whiter belly. The famous Canvas-back also belongs to this genus, and is sometimes sent over from America in ice.

The nest is placed among rushes, sedge or other coarse herbage, near the margins of meres and pools; the greenish-drab eggs being 7–10 or even 13 in number: measurements 2·4 by 1·7 in. The Pochard is excellent for the table so long as it eats the plants which grow below the surface of our inland waters, but when on the sea it becomes coarse, owing to a diet of crustaceans and molluscs. It feeds principally towards dark, at which time large numbers are captured in nets set for the purpose, but from decoys its diving-powers often enable it to escape. The usual note of the male is a low whistle, but the alarm-cry of both sexes is a rough *curre*, whence comes one of the bird's local names. In captivity it has been known to breed, but not freely. Wild birds have several times been obtained which appear to be hybrids between this species and the Ferruginous Duck. One of these is the so-called 'Paget's Pochard' described by W. R. Fisher (Zool. p. 1137 and p. 1778), shot on Rollesby Broad, Norfolk, and now in the possession of Mr. J. H. Gurney, who has a second example, shot in the same county in February 1859. A third is in the Booth collection; and a fourth, caught alive at Saham-Toney Mere on January 9th 1897, is still (August 1898) living at Keswick Hall, Norwich. This hybrid has been named *F. homeyeri* and *F. ferinoïdes*.

The adult male has the head and neck chestnut-red; breast and upper back black; mantle finely freckled with lavender-white and black; wing-patch grey but inconspicuous; under parts greyish-white; tail-coverts black; bill black with a broad band of blue across the middle; iris ruby-red; legs and toes bluish-grey. Length 19 in.; wing 8·25 in. The female has the iris brown; head, neck and breast dull brown; chin white; the rest of the plumage being browner than in the male. The young at first resembles her; the black breast is not assumed by the drake during his first year.



THE FERRUGINOUS DUCK.

FULIGULA NYRÓCA (Güldenstädt).

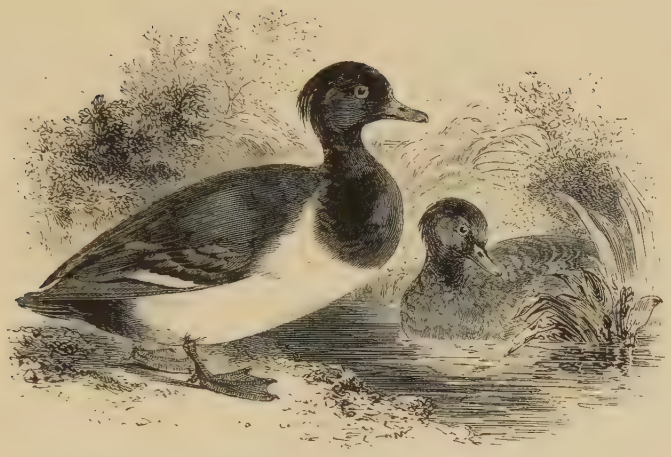
This species—also called the White-eyed Duck, from the colour of its irides—is an irregular visitor to England, principally in winter and spring. More than twenty examples have been obtained in Norfolk, a few in Suffolk, Cambridgeshire, Yorkshire, and along the Trent valley up to Nottinghamshire; Northumberland and Lancashire being each credited with one. Those exposed for sale in the London markets are open to the suspicion of having been brought from Holland (whence live birds are also sometimes sent); but four have been killed near Oxford, one in Dorset, and two in Devon; while a remarkably tame bird was observed on a pond in Radnorshire during the latter part of 1858 and up to March 1859. In Scotland this Duck has been obtained once (perhaps twice) in the Firth of Forth in winter, and two were killed on the Tay early in 1857 (W. Evans). In Ireland six occurrences have been noted, from January to March inclusive (Ussher).

The Ferruginous Duck is not known to breed to the north of Holland, Schleswig-Holstein, East Prussia, or Moscow, but in Poland, Hungary, and Slavonia it is very abundant from April to autumn; on passage it visits the lakes of the Upper Engadine; and it is a resident of general distribution in the southern portions of Europe, from Spain to the Volga. It visits the Canaries, nests in

North Africa, and in winter is found in large flocks on the lakes of Egypt, and thence to Abyssinia. In the temperate and elevated regions of Asia it is generally numerous, and Mr. Hume says that boat-loads of its eggs are brought into the market of Srinagar, in Kashmir. During cold weather it is found over India down to lat. 17° N., and as far east as Arrakan; but in Eastern Siberia, China and Japan it is represented by *F. baeri*.

A nest found in Spain by the late Lord Lilford was placed amongst high rushes, at a short distance from the water, and was composed of dry water-plants with a lining of brownish-white down and a few white feathers. Mr. W. E. Clarke describes the down as brownish-black, with greyish tips at the point of insertion. The eggs, 7–14 in number, are whitish or pale buff-colour, sometimes with an evanescent greenish tinge: measurements 2·1 by 1·5 in. The food, sought by day, consists partly of vegetable matter, but largely of insects and their larvæ, small molluscs, crustaceans &c.; and there is consequently great variation in the fitness of this Duck for the table. Its diving powers can hardly be surpassed; it rises, however, somewhat heavily, striking the water repeatedly with its feet, like a Coot; and it is not remarkably rapid when on the wing, at which time it has a very dark appearance, whence its Spanish name "Negrete." By this fact and by its white wing-bar it may easily be recognized. It is seldom seen on large open sheets of water, but prefers weedy lakes and ponds, where it can find reeds and other cover suited to its skulking nature; in fact its resorts are somewhat similar to those of a Little Grebe. The note is a harsh *kirr*, *kere*, *kirr*. Mr. J. H. Gurney has known a drake live in captivity for fifteen years.

The adult male has the bill bluish-black; irides white; head, neck and upper breast rich chestnut-brown, with a narrow brown collar, and small white spot on the chin; back and wing-coverts umber brown with a tinge of green; quills dusky black, part of the inner webs white; on the secondaries a white patch bordered with black; tail sooty-black; lower breast and belly white; flanks chestnut-brown, vent greyish-brown, under tail-coverts white; legs and toes lead-colour, the webs darker. Length 16 in.; wing 7·75 in. The female is rather smaller; her irides are not so white; the head and neck are of a darker brown, less rich in tone; and the lower breast and belly are seldom—though occasionally—as white as in the male. The young bird of the year has even less of the chestnut tint than the adult female.



THE TUFTED DUCK.

FULIGULA CRISTÁTA (Leach).

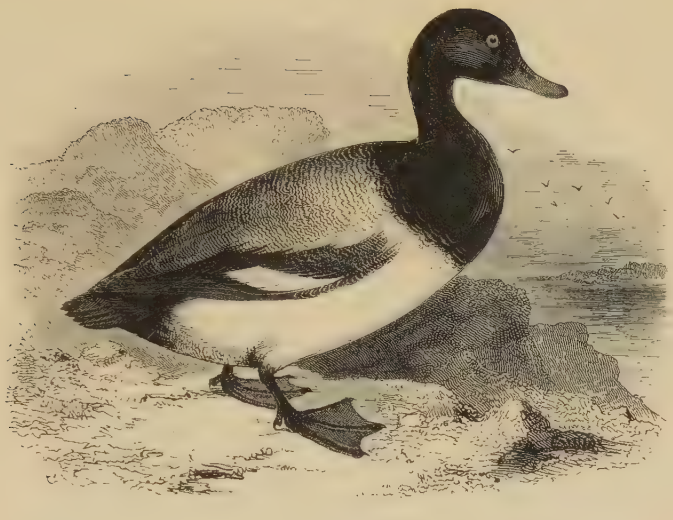
The Tufted Duck is well known as occurring between autumn and spring on our low-lying coasts, estuaries and lakes, where it is often found in company with Pochard, Scaup, Golden-eye, and other diving-ducks; but considerable numbers remain to breed with us, and in few areas more abundantly than in Nottinghamshire, especially on the ponds at Newstead, Clumber, Welbeck, Rufford and Rainworth: the last—the property of Mr. J. Whitaker—having been visited by many ornithologists. Nests have also been found in Yorkshire, Lancashire, Northumberland, Norfolk, Sussex, Hants, Dorset, and some other counties which afford suitable resorts. In Scotland the Tufted Duck is now known to breed on more than forty lochs, and plentifully on some of them; while its nests have been found as far west as Tiree and as far north as Hoy, and the bird has been seen in the Shetlands in summer. In Ireland, increasing numbers nest on the lakes of Ulster, the central counties and the Shannon valley, while in winter the species is generally distributed.

This Duck is said to have bred in the Færoes, and it is found in small numbers on the rivers and lakes of Norway in the warmer months, becoming more abundant in Sweden, Finland and Russia, though comparatively rare beyond the Arctic circle. Southward, it nests in suitable localities down to about lat. 50° N., while over the rest of Europe it is found (even in the High Alps) on migration, and

in winter; at which season it ranges through Africa as far as Abyssinia. In summer it frequents Northern Asia, nearly up to lat. 70°, and during cold weather large numbers visit Japan, China, and India down to Coimbatore, while wanderers reach the Malay Archipelago and even Eastern Polynesia.

As a rule incubation begins towards the end of May or early in June, the nest being concealed under a bush, in a tuft of grass or sedge, and sometimes in a peat-hole; the 8–13 eggs are of a greenish-buff colour: measurements 2·3 by 1·5 in. Incubation lasts about 23 days. The call-note on alighting is rendered by Mr. Whitaker as *currugh*, *currugh*, uttered gutturally; and he called my attention, when at Rainworth, to the fact—which he believed to be invariable—that the female is the first to rise when both birds are together on the water. The Tufted Duck dives freely and frequently. For the table it is tolerably good when it has been eating aquatic plants, but as soon as it has taken to animal food, either on fresh or salt water, the result is not satisfactory. Feeding takes place soon after twilight, and also in the early morning. Pinioned birds have bred on the ponds of the London Zoological Gardens and other ornamental waters; and at the former a Tufted crossed with a Ferruginous Duck in 1849, the hybrids afterwards breeding either *inter se* or with the parents till 1861. In the British Museum there is a hybrid presented by Mr. R. J. Howard from a brood produced between the Tufted Duck and the Pochard in 1886 on a reservoir in Woodfold Park; and a similar bird is in the Belfast Museum.

The adult male has the elongated crest, head and neck glossy purplish-black; breast and upper parts duller black, with a green tinge on the secondaries; wing-patch white with a black border; belly and flanks white, washed with grey towards the vent; under tail-coverts black; bill slate-grey with a black nail; irides brilliant golden-yellow (whence the bird is sometimes called "Golden-eye"); legs and toes slate-blue, webs black. Length 17·25 in.; wing 8 in. Mr. Whitaker says that a paired male began to change into female plumage in May, but an unattached drake was as bright as ever until the end of August, when he became less white on the flanks. It is, perhaps, not generally known that the drakes of many other species retain nearly full dress throughout the summer, when they have not mated. The female is rather smaller, and is sooty-brown on those parts which are black in the male, the under surface being brown barred with grey; immature females (as well as young males) have the forehead sprinkled with white after the autumn moult until the following April.



THE SCAUP-DUCK.

FULIGULA MARÍLA (Linnæus).

The Scaup-Duck makes its appearance on the southern coast of Great Britain about the end of October or the beginning of November, though somewhat earlier in the north. It is common during the winter on low oozy shores as well as in sheltered rocky bays, but the great majority take their departure in spring, and assertions respecting the breeding of this species in Scotland lack confirmation; while, though generally distributed in the cold season, it is not plentiful in the Orkneys or the Outer Hebrides. In Ireland large flocks visit the coasts and tidal waters of the north and west, but comparatively few are noticed in the south.

The Scaup is common in autumn and winter in the Færoes, where a few only remain to nest; but in Iceland it breeds in great abundance, as it does up to lat. 70° N. in Scandinavia, Arctic Russia, and Siberia as far as Bering Island. According to Blasius it has nested on one occasion at the Hiddensee in Brunswick, but as a rule it is not found south of the Baltic except on passage or in winter, when it visits the Swiss lakes. It reaches the Mediterranean, but is rare in the western portion, though not uncommon in the east and the Levant, as well as on the Black and Caspian Seas. It is unknown in Turkestan and rare in India, though occasionally found as far south as Bombay; the mountains and

elevated table-land of Central Asia diverting its line of migration to the east of the meridian of Lake Baikal, whence it can be traced southward to Japan, China and Formosa. Across North America, from the Pacific to the Atlantic, it is distributed north of lat. 50° in summer, and down to Mexico and the West Indies in winter; but in Greenland it is of rare occurrence. There is also a smaller form —of doubtful specific distinctness—known as the American or Lesser Scaup, *F. affinis* of Eyton (*F. mariloïdes* of Vigors); but the example figured as the above in the earlier editions of 'Yarrell,' and once in the collection of the late Mr. F. Bond, appears to be a hybrid between the Scaup and the Pochard, and is certainly not the American bird.

The nest is placed in rough herbage, or among stones in the vicinity of water; the pale greenish-grey eggs are usually 6–11 in number, though as many as 22 have been found together, the joint produce of more than one female: measurements 2·6 by 1·75 in. The note is remarkably hoarse and discordant, resembling the word *skaup*, and its utterance is accompanied by a peculiar toss of the bird's head. The food during winter consists chiefly of molluscs, small crustaceans, and sea-plants, obtained by diving over beds of oysters and mussels (known as "scalp"), or from reefs on which tangle grows; the bird is therefore unpalatable to most people, and, not being an object of pursuit, is, as a rule, rather tame.

The adult male has the head, neck and upper breast glossy greenish-black; mantle with fine wavy cross-lines of black and white; on the secondaries a white patch with a greenish-black border; quills, rump and tail-feathers dull brown; belly white; bill pale greyish-blue; nail black; irides light yellow; legs and toes lead-blue. Length 19 in.; wing 8·5 in. The female has a broad white band round the base of the lead-coloured bill; head and neck sooty-black; breast and back brown, with greyish vermiculations; belly dull white; flanks and under tail-coverts mottled with brown. The young drake at first resembles the female, and does not attain the full glossy black head until he is more than three years old.

THE GOLDEN-EYE.

CLÁNGULA GLAÚCION (Linnæus).

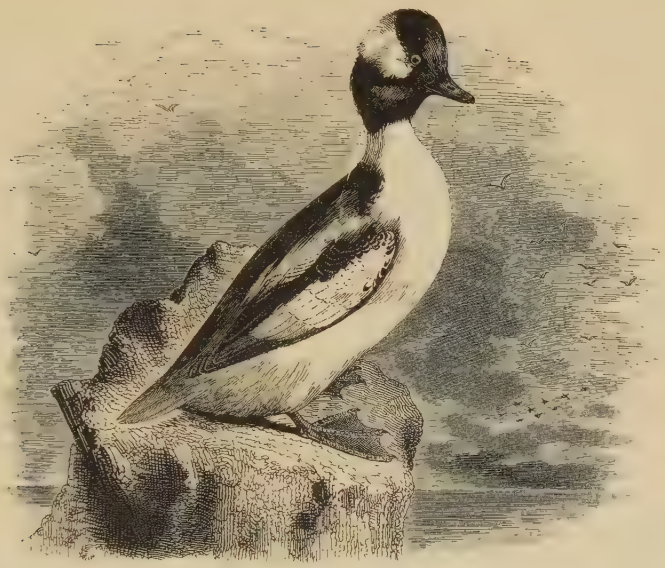
The Golden-eye generally arrives on our coasts about the middle of October; and so long as the inland waters are not frozen it frequents many of our lakes, as well as rivers and tidal estuaries. Immature birds sometimes remain until the end of May, and the Rev. H. A. Macpherson states that he saw a year-old male in North Uist, on July 10th 1886. As a rule, however, the species is comparatively scarce in the Outer Hebrides, though common in winter in the Orkneys and Shetlands. In Ireland it is well known on the estuaries, and especially on the fresh-water loughs. The young and the females are often called 'Morillons,' and are considered by many fowlers as quite distinct from the far rarer mature males.

This species is uncommon in the Færoes, and still more so in Iceland; being represented in the latter island, as well as in Greenland, by the larger Barrow's Golden-eye (*C. islandica*), the male of which has a greater developement of crest and a more purple gloss on the head, while the female is barely recognizable by her average superiority in size. In Scandinavia our Golden-eye is common in summer as far north as lat. 70°, even where the trees—in which it usually makes its nest—are hardly large enough to provide holes

suitable for occupation; while it breeds regularly down to about lat. 58° in Russia; and sparingly, it is said, in Holstein, Mark Brandenburg and East Prussia. Drs. Fatio and Studer assert that it has nested on the Lake of Wallenstadt and in other parts of Switzerland, to the waters of which it is certainly a regular visitor. Southward it is found in cold weather over the rest of Europe, but only severe winters drive it to the western portion of the Mediterranean or to North Africa, though it is not infrequent in Greece, the Black Sea, and the Caspian district. Throughout Siberia it remains up to 67° N. as long as it can find open water, and it also inhabits the lakes of the Pamirs, Kashgaria and Mongolia; while on migration it visits Japan, China, and, occasionally, Upper India. In North America a larger form, identical in plumage, is found.

When in a hollow tree or a hole previously tenanted by a Black Woodpecker, the nest often has an opening so small that a man's hand can with difficulty be inserted; but to obtain the eggs the Lapps and Finns place boxes or hollowed logs in convenient situations, especially in the neighbourhood of falls and rapids, to which this bird seems partial. The eggs, usually 10–12 in number, are bright green, though the colour soon fades: measurements 2·4 by 1·6 in. The food, obtained by diving, consists of crustaceans and molluscs, as well as sea- "grass", which is brought to the surface and eaten. The Golden-eye rises from the water with great rapidity, and, from the noise produced during its flight, is often known by the names of "Rattle-wing" and "Whistler." In the wild state hybrids between this and several species, including the Smew and the Hooded Merganser, have been obtained.

The adult male has the head and upper neck glossy greenish-black, the feathers on the crown being slightly elongated; a conspicuous oval white patch under each eye; chin, throat, and back black; lower neck, elongated scapulars, large wing-patch and under parts white; thighs dark brown; legs and toes yellow with blackish webs; bill bluish-black; irides golden-yellow. In summer a plumage similar to that of the female is assumed, but a little white remains at the base of the bill, and a good deal on the wing. Length 18·5 in.; wing 8·25 in. In females and young males there is no white spot between the eye and the bill; the head is umber-brown, nearly separated by a paler collar from the greyish neck, gorget and shoulders; the wing-coverts are tipped with black, so that the white wing-patch is divided into three portions; the back and flanks are dark brown, and the belly is white.



THE BUFFEL-HEADED DUCK.

CLANGULA ALBÉOLA (Linnæus).

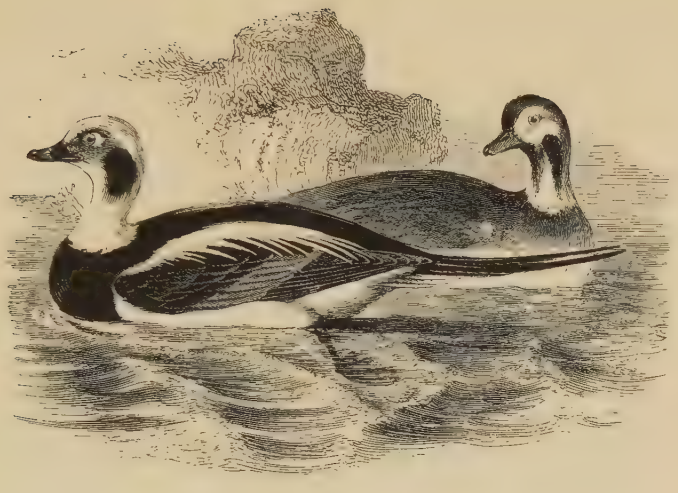
About the winter of 1830 an adult male of this North American species was shot near Yarmouth, and is now in the Norwich Museum, having been purchased at the dispersal of the late Mr. Rising's collection. In 'The Birds of the West of Scotland' (p. 396), the late Mr. Robert Gray stated that he had examined a male shot on the Loch of Loriston, Aberdeenshire, in January 1865, as well as a bird of the same sex in the Banff Museum, obtained many years previously on the Loch of Strathbeg; while a bird—also a mature male—from Bridlington, Yorkshire, taken in the winter of 1864–65, is now in the collection of Mr. J. Whitaker of Rainworth. Some other records are unauthenticated, while one of them is known to be essentially untrue.

The Buffel-headed Duck is not known to have occurred on the shores of the Continent, and even in Greenland Reinhardt was only aware of the occurrence of a female at Godthaab, about the year 1830. In America this species is found during the summer as far south as the States of Maine, Minnesota, Wisconsin and Iowa, and across the Fur-countries to the Pacific, though rare in Northern Alaska. In autumn, and again in spring, an important line of migration is

afforded by the great Mississippi valley. A single specimen was obtained by Dr. Stejneger in January 1883, on Bering Island, off Kamchatka, being the only instance yet recorded from the Asiatic side. This Duck migrates to California—where it is very abundant between October and April, Texas, Mexico, the West Indies, and occasionally to the Bermudas.

A nest found by Mr. Lockhart on the Yukon River was in a poplar, about twenty feet from the ground, and on July 7th contained 10 eggs; their colour was of an ivory-white, with a faint tinge of green: measurements 2 by 1·5 in. Mr. A. C. Stark describes a nest from which he shot the female on May 27th 1882, in West Minnesota, as being in a hole in an oak-tree, which was only a few inches deep, and partly filled with decayed wood, whereon lay 8 eggs nearly buried in down. The stomach of the above bird was crammed with small red worms; but snails, leeches, grasses and aquatic plants are also eaten, while on the sea-coast shrimps and molluscs are obtained by diving. From its fatness this species is generally known in North America by the name of "Butter-ball"; and it is also called the "Spirit-Duck," owing to the alacrity with which it disappears beneath the water. Its note is a mere croak, like that of the Golden-eye, but more feeble. It is very tolerant of cold, and has been seen on the Ohio when that river was thickly covered with floating ice.

The adult male has the forehead metallic-green, with a dash of the same colour on the back of the neck, while the crown and throat are iridescent purple; from behind the eye to the nape extends a large triangular white patch which terminates in a sort of crest; below the purplish-green neck comes a narrow white collar which meets the white under parts; back, rump and inner secondaries, black; outer secondaries, speculum and coverts chiefly white, variegated with black; tail slate-grey; bill bluish; irides dark brown; legs and feet yellowish-pink. Length 15 in.; wing 6·75 in. The female is smaller; her head and neck are ash-brown, with a white patch behind the eye; the upper parts are chiefly greyish-brown; the white on the wing is less defined, and the under parts are tinged with brownish-grey on the sides. The young at first resemble the female.



THE LONG-TAILED DUCK.

HARÉLDA GLACIÁLIS (Linnæus).

Although this species is somewhat uncommon in the south and south-west of England, it was exceptionally numerous in the winter of 1887–88 ; but on the west coast it is local, and adults are seldom seen. On the east side, young birds are not infrequent, and two adult males have been shot in East Anglia in June and a female even in July ; while northward this Duck becomes tolerably abundant from November to April. In Scotland it is to be met with in winter from Berwickshire to Caithness, and on the west side it is very common in the Outer and Inner Hebrides. In the Orkneys and Shetlands, where the bird is well known by the name of "Calloo," from the loud musical note of the male, it occurs on nearly all the inlets or voes ; there is even some evidence that it has bred on Sanday, and there can be little doubt that it nests occasionally in the Shetlands. To the north and west of Ireland its visits are irregular, and in the south they are exceptional.

It is probable that the Long-tailed Duck nests, though sparingly, in the Færoes, and it does so in considerable numbers in Iceland. In Scandinavia it breeds on the streams and lakes of the fells as far south as lat. 60°, though it only becomes numerous to the north of the Arctic circle ; while in winter it is very abundant along the coasts. It also breeds in Jan Mayen, Spitsbergen, Novaya Zemlya, North

Russia, Siberia, and throughout Arctic America, as well as in Greenland; in fact its summer range is circumpolar. In cold weather it migrates southward to about 40° N., visiting the Swiss and Italian lakes as well as the Adriatic; in Asia it reaches Japan and North China; while in America it is found to lat. 37° N., and is widely known as the "South-southerly" and "Old Squaw," from its gabbling cry. In this connection it may be mentioned that in many parts of Scotland the call-note is rendered by "Coal an' can'le licht."

The nest, generally placed among herbage, low bushes by the side of fresh-water, is composed of a few stems of grass, with a thick lining of down, which is little inferior to that of the Eider. The eggs, of a somewhat elongated oval form, are pale greyish-green, and measure about 2·1 by 1·45 in. On a small flat island in My-vatn, Iceland, Messrs. Shepherd and Upcher counted more than twenty nests, and observed a Long-tailed Duck and a Scaup sitting together on one which contained several eggs of the two species. The food consists of animalculæ which swim at various depths, and of small molluscs, crustaceans &c., chiefly picked off sea-weed; in summer aquatic plants and insects are eaten.

The adult male in early spring has the cheeks brownish-grey; below, on each side of the neck, an oval patch of dark brown; forehead, crown and rest of the neck pure white; back and rump blackish; elongated scapulars, inner secondaries, and short exterior tail-feathers white; central tail-feathers black, and sometimes 5 in. longer than the rest; breast, wing-coverts and primaries brownish-black; belly and flanks white; bill pale rose-colour in the middle (when fresh); nail and the basal-half black; irides varying from yellow to hazel and red; legs and toes pale lead-colour, webs blackish. Length (inclusive of the central tail-feathers) 22–26 in.; wing 8·8 in. In the summer-plumage, assumed by the end of May, the space round the eye is pale buff mixed with a little white, the rest of the head, neck, back and breast being dark brown, while the feathers of the scapulars and the secondaries have broad rufous margins with black centres. In the depth of winter there is more white about the head than in spring; and every intermediate stage between these plumages is to be found. The female has the crown and upper parts dark brown; a dull white stripe behind the eye; cheeks, throat and upper breast ash-brown; under parts white; no long tail-feathers. The young male resembles her, but soon becomes darker on the back. A thoroughly mature female has the neck white.

THE HARLEQUIN DUCK.

Cosmonétta histriónica (Linnæus).

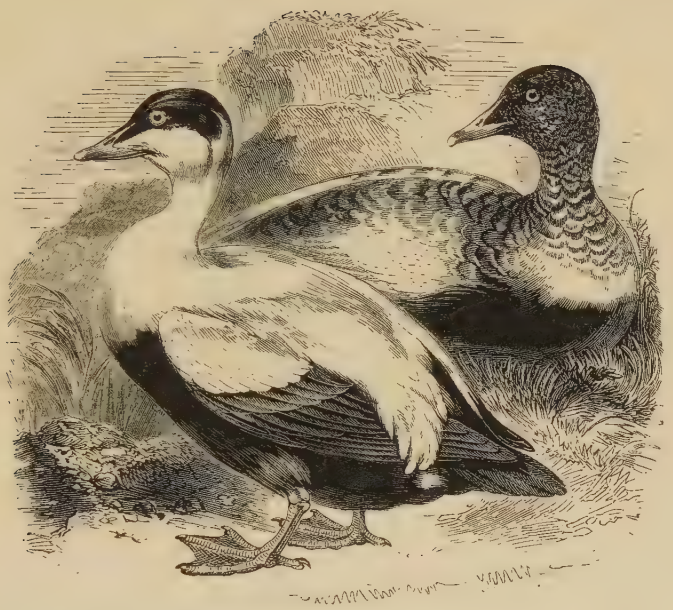
As shown by Prof. Newton in 'The Ibis,' 1859, pp. 162–166, and also by Mr. J. H. Gurney in his 'Rambles of a Naturalist,' pp. 263–269 (1876), the majority of the birds which have from time to time been recorded as Harlequin Ducks obtained in Great Britain have been proved—where proof was possible—to be Long-tailed Ducks, American Wood-Ducks, or some other species. It appears probable, however, that the specimens figured by James Sowerby in his 'British Miscellany' (1806), were procured in Scotland; the collection of Mr. J. Whitaker of Rainworth contains a male bird obtained by Mr. Roberts of Scarborough from some fishermen who had found it dead on the shore at Filey in the autumn of 1862; while on December 2nd 1886, three individuals were observed near the Farne Islands, off the coast of Northumberland, and two young males which were secured are, respectively, in the collections of Mr. R. W. Chase and the Rev. Julian Tuck.

A male Harlequin Duck in the Upsala collection is supposed to

have been obtained on the Swedish coast; and I have examined, in a private collection at Lausanne, a bird of that sex, shot on Lake Léman on September 12th 1865, while occurrences are recorded on the lakes of Morat, Zurich and Constance. This species has not been observed in Spitsbergen, Novaya Zemlya, nor in Siberia as far as the Lena delta, but eastward it is found on the waters of the highlands from Lake Baikal to the Stanovoi Mountains and Kamchatka, whence, by way of the Kuril Islands, it can be traced to Northern Japan in winter. It inhabits the Aleutian Islands, Alaska, California down to the head-waters of the Stanislaus at about 4,000 feet of elevation, the Fur-countries (except the Barren Grounds) and Newfoundland; migrating as far south as St. Louis, Missouri, in winter. In Greenland it has been observed on both coasts and up to about lat. 70° N. on the east. In Iceland it appears to be resident, migrating from the northern to the southern districts in winter.

Mr. Shepherd observed this species in considerable numbers in the north-west of Iceland, frequenting the Laxà and other rapid streams; its nests were in holes in the banks, and, near Myvatn, in the lava, or under stones; while in the south-east Mr. H. J. Pearson found them also under wild angelica and trailing plants. The eggs, normally 7 in number, are of a warm creamy colour: measurements 2·2 by 1·7 in. The food consists of small molluscs, crustaceans and marine insects in winter; and in summer the bird hunts for the larvæ of *Ephemerides* among the stones in the shallows of the swiftest rivers (H. H. Slater).

The adult male has a large white patch on each side of the base of the bill, separated by a median black line running to the nape and margined with white and chestnut; behind each eye a white spot, and lower down a stripe of the same colour; rest of the head, throat and neck bluish-black, with an imperfect collar of white margined with black; in a line with the closed wing a broader but much shorter crescentic half-band of white (the collar and bands are too extensive in the wood-cut); upper parts chiefly bluish-black, with some white stripes and spots on the scapulars, secondaries and wing-coverts; wing-patch purple; breast and abdomen dark greyish-brown; flanks rich chestnut; a small white spot on each side of the tail-coverts; bill bluish-black; irides orange; legs and feet lead-colour. Length 17 in.; wing 8 in. The female is smaller, of a nearly uniform brown-colour above, mottled on the front of the neck; at the base of the bill and behind each eye are patches of white, varying in purity; belly dull white.



THE EIDER DUCK.

SOMATÉRIA MOLLÍSSIMA (Linnæus).

The Eider Duck is only a winter-visitor in somewhat small numbers to Wales and the western and southern coasts of England, but along the east side it gradually becomes more abundant northward, and along the coast of Northumberland, especially on the Farne Islands, it has been known for centuries as a breeding bird. In Scotland it nests in suitable localities up to the Orkneys and Shetlands; while in the Outer Hebrides it is decidedly increasing, and it breeds freely on Tiree, as well as on Colonsay, Jura and Islay, and in some localities in Argyll. On the Irish coast only about thirty-six examples have been obtained, chiefly in cold weather.

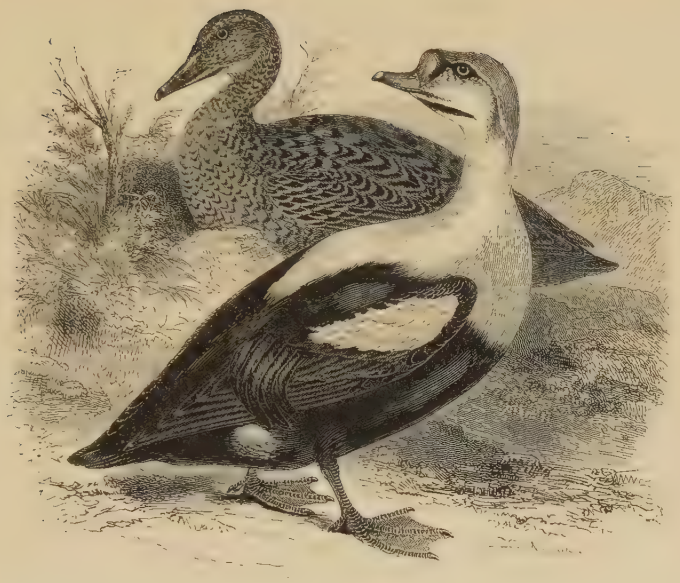
This species is abundant in Iceland, the Færoes, and Norway, where it is protected by law; thence northward it can be traced to Jan Mayen, Spitsbergen and Franz Josef Land. It also breeds on both islands of Novaya Zemlya, but it is rare at the mouth of the Yenesei; while eastward it is not known to extend beyond Cape Chelyuskin, and has not been found by recent travellers at the mouth of the Lena or in Kamchatka. Bering Sea is inhabited by a

larger species, *Somateria v-nigrum*, the male of which has a black chevron under the chin. A form distinguished as *S. mollissima borealis* inhabits Greenland up to lat. 81° N., and goes westward as far as the Coppermine River in Arctic America; while in Southern Labrador, and down to the Delaware in winter, is found *S. dresseri*, Sharpe, which has the bare space near the base of the bill rounded rather than triangular, and the sides of the crown greener; an example of this form, obtained by Mr. T. M. Pike in Holland, is in Mr. Hart's museum at Christchurch, Hants. In winter our Eider occurs irregularly on the coasts of Europe, and exceptionally as far south as the Adriatic and other portions of the Mediterranean; occasionally on inland waters.

The nest is usually among coarse herbage on low islands at no great distance from water; but it has occasionally been found a mile or even more inland, and also at upwards of 1,000 feet above sea-level. The materials are grasses, fine sea-weed, and sometimes heather, while during incubation, which lasts about 28 days, the celebrated down is gradually added. The duck, when disturbed, squirts a stinking liquid over her eggs; these, 5–8 in number, vary from greenish-grey to bright green: measurements 3 in. by 2 in. Towards the end of May, when the ducks begin to sit, the drakes leave them and form small parties. The food, obtained by diving, consists of mussels—some of which, swallowed entire, are $2\frac{1}{2}$ in. in length—crustaceans, and sea-weed; while, in confinement, worms, slugs and the raw flesh of other birds are freely eaten. Several broods have been hatched in the Zoological Gardens.

The adult male in very early spring has the bill greenish; down its centre halfway to the nostrils there reaches a wedge of black feathers, like those of the sides of the bill, forehead and crown, the last being bisected by a white line running to the pale green nape and divided by another white line from a green patch on each side of the neck; checks, back and wing-coverts white; long sickle-shaped secondaries yellowish-white; quills, rump and tail nearly black, with a patch of white on each side of the last; breast rosy-buff; belly black; legs and toes dull green. In summer the white feathers are shed, and the back becomes nearly black. Length 23 in.; wing 11 in. The female is chiefly buff with dark bars, but is very ruddy in first plumage; quills and tail-feathers dull black.

The front figure in the wood-cut represents an old male, and an immature bird of the same sex is in the background. The male does not attain full plumage until the third spring.



THE KING-EIDER.

SOMATERIA SPECTÁBILIS (Linnæus).

The King-Eider is an inhabitant of the Arctic regions, and its visits to our coasts are rare, though naturally more frequent in the north than in the south. Mr. J. H. Gurney has a female which was purchased—freshly killed—in Leadenhall Market by the late Mr. Gatcombe, who had previously seen an immature bird at Plymouth; in Norfolk a young male was obtained in January 1888, and two females were shot in November 1890; and a bird was killed at Bridlington in Yorkshire as long ago as August 1850. At the Farne Islands, which seem very attractive to this species, adults of both sexes have been observed from time to time in summer, and mature drakes were secured in November 1873 and April 1885, respectively. In Scotland birds have been obtained or identified by competent observers off the coasts of Haddingtonshire and the Firths of Forth and Tay; while in the Orkneys four have been taken (two of them in spring). In Ireland, Kingstown Harbour, Belfast Lough, Rathlin Island and Achill Island have each yielded a specimen; all of them in winter and at long intervals.

Even on the shores of Holland, Denmark and the Baltic the King-Eider is very rare; but there is a specimen in the Museum

at Boulogne, and one was obtained near Venice on August 21st 1888. It is only a visitor to Iceland, the Færoes and the coast of Norway, and there is as yet no proof of its breeding in Spitsbergen, which, however, it frequents; but it nests on Kolguev, Novaya Zemlya, and along the Arctic shores of Siberia as far as Bering Sea. Crossing eastward to America, it has been found in summer nearly as far north as man has penetrated, and its southern nesting-limit is in the Province of Quebec; while in winter it occurs on the coast of America as well as on the great fresh-water lakes, down to the latitude of New York, and it has been recorded from California. In West Greenland it nests near Godhavn and Upernavik, though by no means so plentiful there as the Common Eider.

The nest is similar to that of our Eider, and the eggs, which are not known to exceed 6 in number, present the same varied shades of green; but they are decidedly smaller, measuring about 2·6 by 1·9 in. The food consists chiefly of crustaceans and molluscs.

The adult male has the bill and the naked basal tubercle orange-red, the latter margined with black; cheeks sea-green and white; top of the head and nape bluish-grey; neck buffish-white; upper back whiter; wing-coverts white, showing conspicuously on the otherwise sooty wing; the elongated black inner secondaries falling in curves over the primaries; lower back and upper tail-coverts black; tail-feathers dark brown; under the chin a black chevron; front of neck white; upper breast rich buff; lower breast, belly, and under surface black, except a white patch on each flank; legs and toes orange-red, webs darker. Length 21 in.; wing 10·5 in. The female has the beak greenish; the entire plumage of two shades of brown, the darker colour occupying the centre of each feather of the back, while the margins are bright rufous; the brown on the head and neck being rather lighter. She is smaller than the female of the Common Eider, and the central lines of feathers on the upper mandible run as far as a line with the nostrils, though more in the direction of the commisures of the bill, whereas in the female Common Eider these lines hardly reach half way. The plumage of the young drake is at first like that of the female, but afterwards the head and neck become yellowish-grey, spotted with black, and a great deal of the latter colour appears on the upper as well as the under parts, while the buff gorget becomes well defined, but no white appears on the wing-coverts till much later. The male does not attain full plumage until nearly four years old.

STELLER'S EIDER.

SOMATERIA STÉLLERI (Pallas).

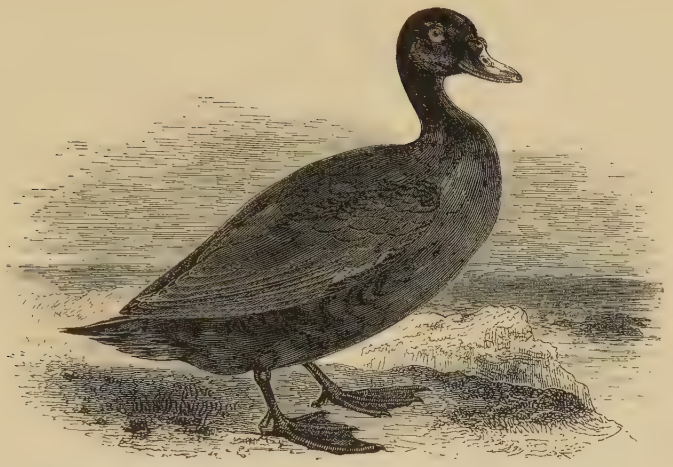
This Arctic species, formerly called Steller's Western Duck, occasionally wanders to the temperate portions of Europe in winter, and has twice occurred in England. The first example, a male in nearly adult plumage, was killed on February 10th 1830, at Caistor in Norfolk, and having been afterwards presented to the Norwich Museum by the Rev. George Stewart, formed the subject of Yarrell's (and the present) illustration. The second was shot while sitting alone on the sea off Filey Brigg, Yorkshire, on August 15th 1845, by the late Mr. G. N. Curzon, and is in the collection of his brother, Lord Scarsdale, at Kedleston, where I have examined it. This bird was beginning to moult, the white feathers on the head and the black marks on the chin and neck—characteristic of the male—being just visible; but the upper parts are still in the immature plumage, which resembles that of the female.

Steller's Eider is said to have been obtained in 1855 between Calais and Boulogne; four examples have been shot off Heligoland, and two in Denmark; while in the Baltic it is sometimes not uncommon. To the unfrozen waters on the coast of Norway it is an annual winter-visitant, and its most westerly breeding-place is said

to be on the Varanger Fjord, just east of the North Cape; it is, moreover, reported as nesting on the coast of Russian Finmark, and eggs and down are asserted to have been taken at Petschinka in 1870. There is, however, no record of it on Novaya Zemlya, nor along the Arctic coast of Siberia until the Taimyr Peninsula is reached, where Middendorff found the bird common and breeding on the 'tundras.' Dr. A. Bunge saw flocks in June at Great Liákoff Island, lat. 73° N., to the east of the Lena delta, and had two eggs brought to him on July 4th; and the 'Vega' expedition procured specimens in July close to Bering Strait, north of which this species is common; while it can be traced down the coast of Kamchatka—where the bird was first obtained by Steller—to the Kuril Islands in winter. In the Aleutian Islands and the north of Alaska it is very abundant, but eastward it is only sparsely distributed along the American shores of the Arctic Sea to Davis Strait; while it is very rare in West Greenland, and unknown on the east side.

Middendorff describes the nest as cup-shaped and lined with down, placed in the moss on the flat 'tundras'; the eggs, 7–9 in number, are of a pale greenish-grey colour: measurements 2·2 by 1·6 in. The food consists of marine insects and molluscs. As far as is known, the bird chiefly frequents deep clear sea-water; and in winter it is found in small flocks, which are sometimes joined by a solitary King-Eider, the only Duck with which this species has been seen to associate.

The adult male has the head and upper neck chiefly satin-white; lores and crescentic tuft across the occiput dull green, the latter tipped with black; chin black; round the neck a collar of bluish-black, ending in a broad stripe which passes down the middle of the back to the upper tail-coverts; quills and tail-feathers brown; secondaries partly white, with a rich dark blue patch; the decurved inner secondaries and long falcated scapulars white on the inner and rich blue on the outer webs; below the point of the wing some white feathers tipped with black; middle of breast and belly rich chestnut-brown, passing into warm buff on the front, sides and flanks; vent and under tail-coverts dark brown; bill, legs and feet dark grey. Length 18 in.; wing 8·5 in. The female is dark brown, mottled with rufous, especially about the neck and breast; the greater coverts and the secondaries have white tips, forming two bars, which enclose between them a bluish-black wing-patch. The plumage of the immature drake is described on p. 463.



THE COMMON SCOTER.

Œdémia nígra (Linnæus).

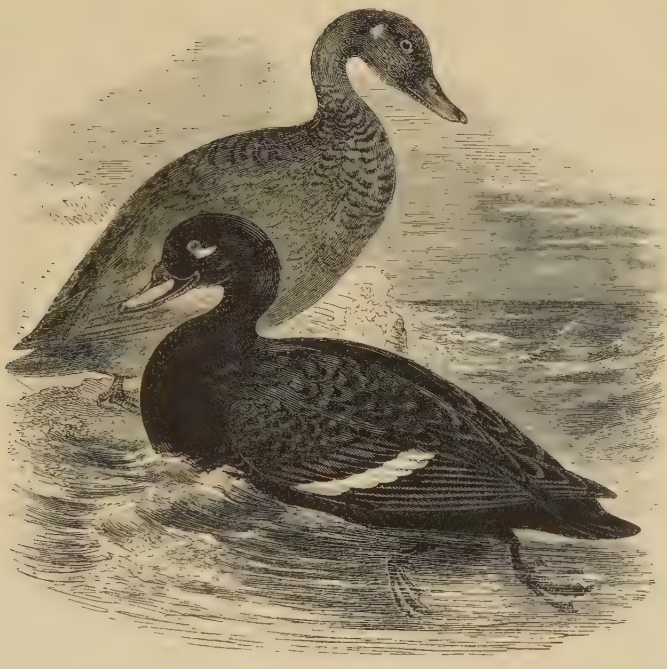
A comparatively small number of immature Common or Black Scoters may be observed on our coasts during the entire summer, but the autumn and winter months are those in which this species is really abundant, and nowhere more so than along the eastern side of Great Britain. At times its flocks almost blacken the sea between this country and Holland, while they are also very plentiful in the English Channel; but not many enter the bays, except in coarse weather, though storm-driven birds occasionally take refuge on inland waters. On the coast of Wales, as well as in the west of England and Scotland, the Scoter is less plentiful, except on the shallows of Morecambe Bay and on the Solway, where thousands are sometimes seen; it is comparatively rare in the Hebrides, except at Tiree, where it bred in 1897; and it is not numerous in the Orkneys or the Shetlands. In spring the majority take their departure for the north of Europe, but a few remain to breed in Caithness, Sutherland, and the north-west of Rosshire. In Ireland the species is abundant every winter on the marine loughs from Dundalk northward, and south-westward to Connaught, but in the south it is comparatively uncommon.

The Scoter visits the Færoes and nests sparingly in Iceland, while it is generally distributed during summer in the northern portions of Scandinavia, Russia, and Siberia as far as the Taimyr and

Boganida. When the Baltic is frozen it is found in vast flocks on the coast of Friesland, and is hardly less numerous off Holland, Belgium and Northern France. Along the Atlantic sea-board of Europe it is of regular occurrence in winter, reaching as far to the south-west as the Azores; and it is also met with up the Mediterranean as far as Tunisia, but is rare on the shores of Provence and Italy. On the inland waters of the Continent it is less frequent than the Velvet-Scoter, but it visits the Swiss lakes and appears to cross the Alps to the Adriatic at intervals; while an important line of migration runs along the valley of the Volga to the Caspian, and Canon Tristram found the species on the coast of Palestine in winter. Throughout North America the representative is a closely-allied species, *Œ. americana*, in which the entire protuberance at the base of the bill is orange-yellow; this form ranges across the Pacific to Kamchatka and the Kuril Islands, where it breeds, visiting Japan and the Corea in winter.

The nest, usually placed on an island in a fresh-water lake, or among the heathery bogs in the vicinity, is composed of grass and moss with a lining of down; the eggs, laid during the first half of June, are 6–9 in number, and yellowish-white in colour: measurements 2·5 by 1·8 in. The food consists chiefly of molluscs, which the bird obtains by diving, and it generally approaches the shore with each flood-tide for the purpose of satisfying its appetite; the flesh is oily and seldom eaten in this country. Like the rest of the genus, the Common Scoter dives well, and remains a considerable time under water. The call-note of the male during the breeding-season is rendered by Faber as *tu-tu-tu-tu*, the female answering with a harsh *re-re-re-re-re*.

The adult male has the central ridge of the upper mandible orange-yellow, the knob and the rest of the bill black; irides dark hazel; upper plumage deep glossy-black, under surface duller; legs, toes and webs dusky-black. Length 20 in.; wing 9 in. The female has the crown and upper parts sooty-brown, the margins of the wing-coverts a little lighter; chin dirty white; cheeks and sides of the neck greyish-brown; lower part of the neck, breast, abdomen, vent and under tail-coverts dark brown; no knob and no orange ridge on the bill; legs and toes dusky-olive, webs almost black. Young birds of the year, at the approach of their first winter, have the cheeks, chin, sides and front of the neck dull greyish-white, while the under surface of the body is mottled with white and brown.



THE VELVET-SCOTER.

Œdemia fúsca (Linnæus).

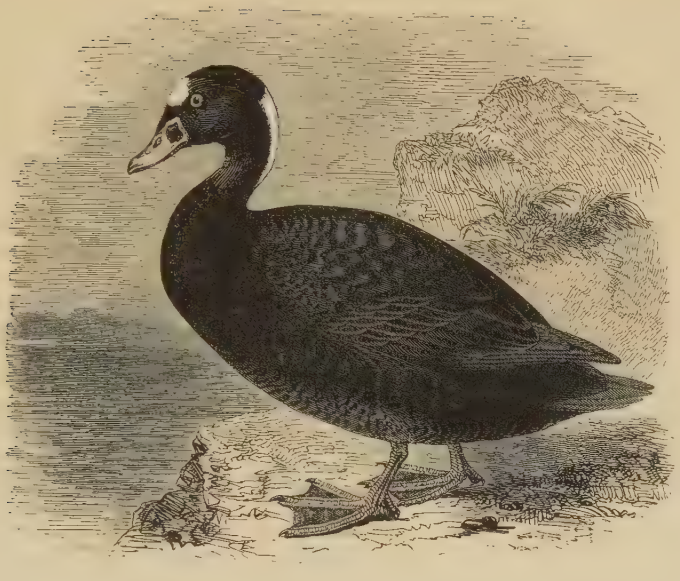
The Velvet-Scoter, easily distinguished from the preceding species by its larger size and the conspicuous white band on the wing, is far less numerous on our coasts in autumn and winter; but Mr. Cordeaux has observed that in Lynn and Boston 'deeps' a pair or two are found associating with almost every flock of Common Scoters, and I have noticed the same off Southport in Lancashire. Along the south of England it is not infrequent, though never very plentiful, while it seems to be rare in the west and in Wales; occasionally it visits inland waters. It is of irregular occurrence in winter off Northumberland, and there, as well as in the Firth of Forth and St. Andrews Bay, non-breeding birds have been observed throughout the summer. As a rule the Velvet-Scoter is more abundant on the east side of Scotland than on the west, and it is common in some of the Orkneys; yet it is an unusual visitor to the Shetlands, while it is rare in the Hebrides. There is some slight evidence that a few pairs have bred in parts of the northern High-

lands. At sea off the northern and eastern coasts of Ireland this species is not uncommon, but on the west side it is almost unknown.

To the Færoes the Velvet-Scoter is a very rare wanderer, and it has not yet been obtained in Iceland, and only once in Greenland. In Scandinavia and Northern Russia it is common on the lakes of the interior during the summer, and according to Taczanowski it breeds as far south as Podolia, while Naumann states that it occasionally nests in Mecklenburg. In winter it visits the Baltic, the North Sea, and the waters of Western Europe; and on migration it crosses the Alps to the Adriatic, also reaching the Black Sea and the Caspian. In Siberia Mr. Popham found it as far east as the mouth of the Yenesei; but the representative species in Eastern Siberia is *Œ. carbo*, which visits Japan and China in winter and may occur in Alaska. Throughout North America the representative species is *Œ. velvetina* (*Œ. deglandi*)—a rather smaller bird, the male of which presents some differences in the form of the bill.

The nest, seldom made before the end of June, is placed in a dry spot under some bush or tree, often at a considerable distance from fresh water, and is lined with leaves and down. The eggs, 8–10 in number, are of a clear creamy-white and rather large for the size of the bird: measurements 2·75 by 1·9 in. As a rule the Velvet-Scoter keeps further out at sea than the preceding species, during the winter; it dives deeper, and remains down longer. Its food consists largely of molluscs, and its flesh is rank.

The adult male has the plumage velvet-black, except a small white patch behind each eye and a conspicuous white bar across each wing (which gives the bird when flying the appearance of an old Blackcock); bill apricot-yellow, with an elevated black basal tubercle, from which a narrow dark line runs diagonally above each nostril to the nail and is continued backwards to the gape; irides white; legs and toes orange-red, webs black. Length 22 in.; wing 10·75 in. In the female the upper plumage is sooty-brown, and the under parts are lighter; there is a large dull white patch before—and a smaller one behind—each eye; the white wing-bar is less defined than in the male, and the bill is dark lead-colour with a smaller basal tubercle; legs and toes dull red. The young are like the female.



THE SURF-SCOTER.

Œdemia perspicillata (Linnæus).

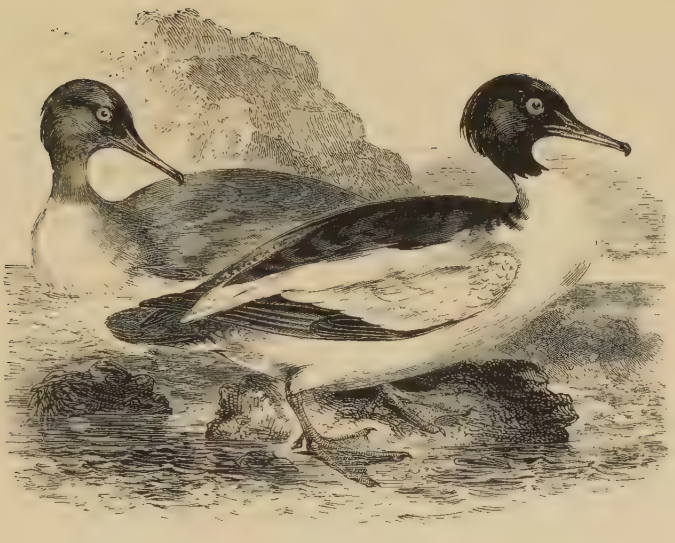
The Surf-Scoter is a North American bird which has not infrequently wandered in the cold season to our coasts—especially to the western side, where the influence of the Gulf Stream is felt. Since 1838, when its occurrence in British waters was first recorded by Blyth, two examples have been obtained near Weymouth, three in South Devon, one in Cornwall, two in the Scilly Islands, a young male off Lytham in Lancashire on December 9th 1882, an adult drake at Crofton in Cumberland, and a bird near Stornoway in the Hebrides during the winter of 1865. But its favourite haunts between autumn and spring appear to be in the Orkneys, where at least six specimens have been obtained during the last twenty years, while a far larger number have been identified by thoroughly competent observers. In the Shetlands it has not yet been procured, but Robert Dunn stated that he made unavailing attempts to get within shot of a male in Roeness Voe in June 1847. On the east side of Scotland, one was shot in the Firth of Forth in 1852, and Gould seems to have obtained one earlier. In Ireland several were seen on Belfast Lough during September 1846, one of them being now in the museum of that town; a bird was obtained at Clontarf,

co. Dublin, in October 1880; and Mr. R. M. Barrington recorded (Zool. 1889, p. 32) the capture of a female or young male in Crookhaven Harbour, co. Cork, on November 5th 1888. Mr. J. R. Sheridan seems to have obtained a female off Achill Island; and Mr. R. Warren has described (Zool. 1897, p. 84) the capture of a male and a female in the estuary of the Moy.

This species has occurred once in the Færoes, once in Norway, several times in Swedish Lapland, and once in the Gulf of Bothnia; a bird killed off Heligoland is in the Gätke collection, and many examples have been obtained in various winters along the north coast of France. To Greenland the Surf-Scoter is only a straggler, and it is also rare in the extreme north-east of Siberia. Throughout America to the north of about lat. 45°, it is found during summer from the Atlantic to the Pacific; while in the cold season it visits Lower California and the Great Lakes, follows the eastern sea-board as far as Florida, and occasionally reaches the Bermudas and Jamaica.

The nest is usually built on the margin of a lake, or concealed beneath the lower branches of a stunted pine-tree; and the eggs, from 6–8 in number, laid in the latter part of June, are of an ivory-white colour: measurements 2·3 by 1·6 in. The food consists chiefly of small bivalves, for which the bird dives with great assiduity amidst the tumbling surf to which it is partial; while it seldom, if ever, visits inland or sheltered waters. Exceptionally, the Surf-Scoter has been known to fly against the lanterns of light-houses in America. By the gunners and fishermen in New England it is, like many other Sea-Ducks, known as "Coot," with such distinguishing prefixes as "skunk-headed," "hollow-billed," or "spectacled."

The adult male has the general plumage deep black, the under parts somewhat sooty in their tint; on the forehead a broad patch of white, with another of the same colour on the nape; bill chiefly orange-red—deeper above the nostrils—with a square patch of black on each side of the upper mandible; iris straw-yellow; legs and feet orange-red, webs dark olive. Length 21 in.; wing 9·5 in. The female differs in having the plumage of a dull brown colour, which is lightest about the cheeks—on which two white spots are sometimes present—and on the under parts, while the white patch on the nape is less defined; bill dark olive; legs and toes yellowish-orange, webs greyish-brown. In the young the white patches on the cheeks are said to be more pronounced than in the adult female, but there is great individual variation in the plumage of this species. An albino has been recorded by Dr. C. Hart Merriam.



THE GOOSANDER.

MÉRGUS MERGÁNSER, Linnæus.

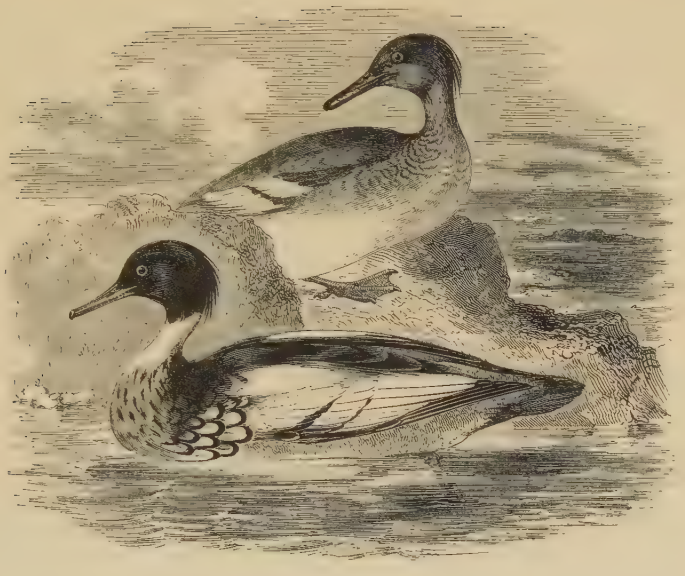
In England this species, the largest of the British 'Saw-bills,' is known as a visitor to estuaries and fresh-water lakes during the cold season, and sometimes remains in Norfolk until May. In the east it is more plentiful than the Red-breasted Merganser, but in the south, and on the waters of Wales, it is of somewhat irregular occurrence. In Scotland, besides occurring in winter, it has for some years been known to nest in Sutherland and down to the Great Glen, as well as in Strathspey and elsewhere in the Highlands; but in the Shetlands, Orkneys and Outer Hebrides it is rare at any season. To Ireland it is only an irregular visitor, though sometimes seen on inland waters in small flocks during severe frosts.

Though not yet recorded from Greenland, and seldom seen in the Færoes, the Goosander breeds and is said to be resident in Iceland. It is common throughout the summer in Scandinavia, Finland, and Northern Russia as far south as the Ural and Central Volga districts; it nests sparingly in hollow trees where the forests come down to the water in Denmark, as well as in the north-eastern provinces of Germany; and it also breeds in Switzerland on the lakes of Bienne, Neuchâtel, Morat and Constance. In winter it occurs on the waters of the Continent as far as the south of Spain,

as well as in North-western Africa; but it is uncommon in the Mediterranean, except in the Adriatic branch, which it reaches by crossing the Alps. It is tolerably plentiful in the Black Sea, and eastward it can be traced across Siberia to Kamchatka, its breeding-range reaching as far south as the elevated lakes of Central Asia, inclusive of those on the northern side of the Himalayas; while in the cold season the bird is found down to about lat. 22° N. in China. North America is inhabited by a closely-allied sub-species, the adult male of which shows a distinct black band about half-way across the wing-patch.

Toward the end of April in Denmark and East Prussia, but somewhat later in Sweden, the Goosander lays its eggs in hollow trees, or avails itself of the nesting-boxes set up by the natives for various species of Ducks; while in Scotland a hole in the trunk of a tree (frequently an alder), a recess beneath gnarled roots, a hole in a peat-bog, or sometimes a sheltered ledge of rock, are the localities selected. The down is greyish-white; the eggs, 8–13 in number, are of a creamy- or buff-white, very different from the greenish-drab of those of the Red-breasted Merganser: measurements 2·6 by 1·8 in. Booth remarked that until the young attained the age of a month or five weeks, the female usually kept them in the shallows, where there was less danger of their falling victims to their great enemy, the pike; he also noticed that although the young birds had no pinion-feathers, they appeared, on rising after a dive, to flap along the surface for a yard or two, striking the water with their feet. The note is described by Mr. Oswin Lee as a harsh *karrr*. The food consists almost entirely of fish.

The adult male has the greater part of the bill blood-red; irides red; head and upper neck glossy bottle-green; lower neck and the entire under parts white, tinged with salmon-pink; upper back and scapulars black; wing-coverts chiefly white; primaries and some of the secondaries ash-brown; lower back and tail ash-grey; legs and toes orange-red. Length 26 in.; wing 11 in. The female has the head—with its small crest—and the upper neck reddish-brown; chin dull white; upper parts chiefly ash-grey, with dark brown inner secondaries and quills, and a white wing-patch; under parts buffish-white, mottled with ash-grey on the sides; bill, legs and feet duller than in the male. Length 24 in.; wing 10 in. The young at first resemble the female, but a rudimentary dark collar soon makes its appearance in the drakes; these do not attain their full plumage until the second year.



THE RED-BREASTED MERGANSER.

MERGUS SERRÁTOR, Linnæus.

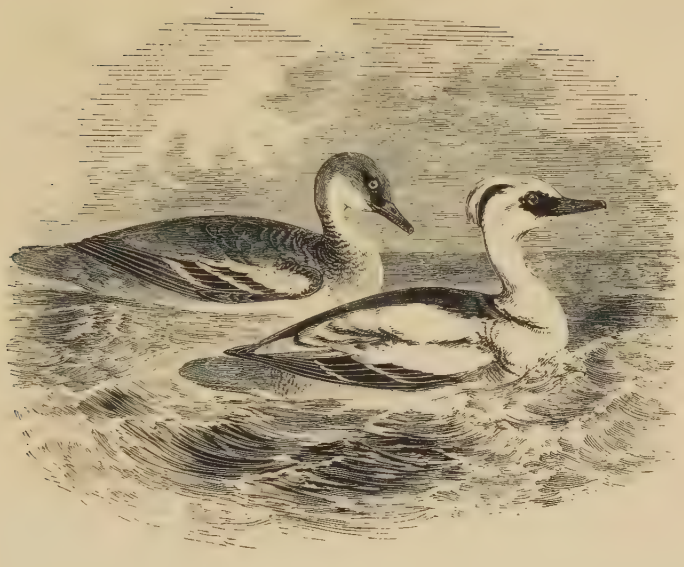
The Red-breasted Merganser is generally distributed during the winter along the shores of England and Wales; but, unlike the Goosander, it is not partial at that season to inland waters, though sometimes observed far up tidal rivers. In Scotland it is resident, and breeds in considerable numbers on the fresh-water lochs as well as on the coasts of the northern and western districts of the mainland, especially in Ross and Sutherland; while it is abundant in the Hebrides and Orkneys, though less frequent in the Shetlands. In Ireland, where it is known as "Sheld-Duck," and occasionally as "Spear-Wigeon" from the sharp serrated bill, it nests regularly on most of the large loughs, and in many localities along the sea-board; while hundreds may sometimes be seen together in severe weather.

This species breeds in Greenland, Iceland, the Færoes, Scandinavia, Northern Russia, and—sparingly—on the islands of the Baltic, as well as along its southern shores. In winter it visits the lakes and large rivers of the Continent, though less plentiful there than the Goosander; yet on the coasts it is more numerous, and it is by no means rare throughout the Mediterranean, migrating as far as the waters of Algeria and Egypt. It ranges across Northern

Siberia to the Pacific in summer, and to Japan and China in winter; but in India, where the Goosander is common during the cold season, the Red-breasted Merganser is either exceedingly rare or has been overlooked, for only a single example, obtained off Karachi, is on record. In America it inhabits the northern districts from the Pacific to the Atlantic, reaching as far south in summer as about lat. 45° N., while its winter-range extends to the Bermudas.

The nest is well concealed in heather, brushwood or long grass, and may be at the end of a small tunnel which leads to the middle of a thick growth of briars; sometimes it is in the burrow of a Sheld-Duck, or among broken lava in Iceland; and exceptionally it is almost open to the sky. The lining consists of drab-coloured down; the eggs, usually laid in the latter part of May and seldom more than 10 in number, are drab-coloured with a greenish tinge: measurements 2·5 by 1·7 in. After the young are hatched the male may often be seen at no great distance from the female and brood, but if approached he soon departs; the mother, on the contrary, remains with the young, diving and doubling in the water with marvellous rapidity. The Merganser swims very low; on land, according to the late Mr. A. C. Chapman, it sits nearly upright. It feeds by day, chiefly on small fish, including trout and salmon-fry; its flesh is extremely unpalatable.

The adult male has the bill and irides red; the head, with its long filamentous crest, and the upper neck, dark glossy-green; below this, a white collar, divided on the nape by a narrow black line running to the back, which is also black; near the point of the wing a conspicuous tuft of white feathers broadly edged with black; the long falcated inner scapulars black, and the outer ones chiefly white; wing-patch white, barred with black; rump, flanks, and tail-coverts vermiculated with grey; lower neck pale chestnut-brown, streaked with black; under parts white; legs and toes reddish-orange. Length 24 in.; wing 9·5 in. The female is smaller, with a very distinct black bar across the wing-patch, and has the head and neck of a reddish-brown: like the duck Goosander, which she somewhat resembles, though her back is browner, and her dimensions are much less, the length of her wing being only 9 in. The young resemble her in plumage, but males may be recognized by a perceptible enlargement at the base of the trachea; they do not attain their full dress till after their second autumn moult. The old drakes lose their bright colours in summer.



THE SMEW.

MERGUS ALBÉLLUS, Linnæus.

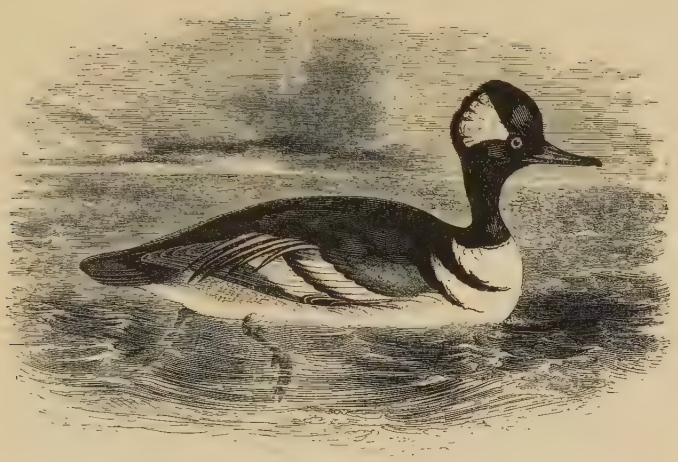
The Smew, or Smee—sometimes called Nun, from the sharply contrasted plumage of the male—is the smallest member of the genus, and the least numerous of the three "Saw-bills" which frequent our islands. Young birds and females, known to fishermen as Red-headed Smews, are not uncommon in winter along the eastern side of England and Scotland, but males in full dress are seldom met with, as they keep further out at sea, and rarely approach the shore, except in very severe weather. In the south this species is of tolerably regular occurrence on the sheltered estuaries and inland waters; but it is comparatively scarce along the west coast of England and Wales, and also of Scotland, save round the Inner Hebrides. In the Orkneys it is not uncommon, but it is seldom seen in the Shetlands. To Ireland it is an irregular visitor—chiefly to fresh-water—in the cold season.

This species is not known in the Færoes, Iceland or Greenland, and even in winter is seldom found on the coast of Norway or of that portion of Sweden which lies outside the Baltic; though on its south-westerly migrations it skirts the Atlantic sea-board of Europe and reaches Morocco. The extensive lakes of Switzerland

and Central Europe prove attractive to a tolerable number, and many pass down the Rhone valley to the Mediterranean, where the bird is generally distributed in winter. Its western breeding-limit appears to be in Finnish Lapland, and there Wolley obtained the first authenticated eggs on record; it also nests in Northern Russia and for a considerable distance southward along the Ural Mountains; while lines of migration run down to the Ægean, the Black Sea, and the Caspian. In summer the Smew is found across Siberia up to the limit of forest-growth, and in cold weather it visits Japan, China, and Northern India. An ancient specimen in the British Museum is said to have come from "North America."

It was only after four years of arduous research, and persistent inquiry respecting the breeding habits of the "Uinilo," as the Finns call the Smew, that Wolley succeeded in obtaining three eggs, which, with the female bird, had been taken from a hollow in an old rotten birch-stump, on June 8th 1857; while four more belonging to the same clutch were afterwards sent to him. In 1875 Messrs. Harvie-Brown and Seebohm had four eggs brought to them at Habariki on the Petchora, a little south of the Arctic circle, and they afterwards procured from the nest some of the down, which is white. The eggs are cream-coloured, like those of the Wigeon, but they have a close-grained surface, and are much heavier, though slightly smaller: measurements 2 in. by 1·45 in. The food consists of fish, crustaceans &c. The Smew, like the rest of the genus, is an excellent diver, but it walks with difficulty, owing to the backward position of its legs.

The adult male in spring has the short bill slate-blue, with a white nail; irides reddish; round each eye a black patch; forehead, crown and elongated crest satin-white, the latter set off by a triangular patch of greenish-black; throat, neck, and under parts white; back black, with a crescentic mottled band of the same colour stretching over each side of the shoulders and another in front of each wing; scapulars white, margined with black; lesser wing-coverts white; greater coverts black, with two narrow white bars; quills and tail-feathers blackish-brown; flanks finely vermiculated with grey; legs and toes lead-colour. In June the female plumage is assumed and is retained until the autumn. Length 17·5 in.; wing 7·6 in. The hen-bird is much smaller; she has a black patch on the lores (not assumed till the second moult); head reddish-brown, with a nuchal stripe and collar of ash-grey; upper parts much as in the male; under parts pure white. In the young the upper surface is mottled with grey.



THE HOODED MERGANSER.

MERGUS CUCULLÁTUS, Linnæus.

There are several unauthenticated statements respecting the occurrence of this North American species in British waters, but the records upon which reliance can be placed are very few in number. Eyton, in his 'History of the Rarer British Birds' (p. 75), has described and figured a Hooded Merganser which he obtained in the Menai Straits, North Wales, in the winter of 1830–31. In Ireland, Mr. Ussher has not been able to find, among the birds at Chute Hall, Tralee, the specimen said to have been killed in Dingle Bay, co. Kerry, about 1840; while he has been equally unsuccessful with regard to an immature bird stated by Watters to have been shot in co. Meath. Sir R. Payne-Gallwey, however, has had the good fortune to secure no fewer than three ('Fowler in Ireland,' p. 121). Of the latter, a pair haunted a creek in Cork Harbour during the severe frost of December 1878, in company with some Red-breasted Mergansers; but though he had ample opportunities of observing through a glass their motions when feeding and flying, they were too wild to allow of his approach within range, until one day when they were deserted by their companions. He killed the third bird during yet more severe weather in January 1881, on the north coast of Kerry; while he heard of a solitary individual being shot near Sligo the same winter, but believes that it was not preserved. From what he saw of those he procured, they appeared to fly faster and

with a more darting motion than their congeners, though diving with equal facility; on one occasion, however, a crippled Hooded Merganser made no effort to submerge itself, but swam low in the water like a wounded Teal, with the crest laid flat and the head looking small and black, very unlike its usually bushy aspect. For the evidence that Hoy obtained a male in Norfolk in the winter of 1837–38, reference may be made to Stevenson's 'Birds of Norfolk,' iii. p. 228.

There is no authenticated instance of the occurrence of the Hooded Merganser on the Continent, nor, so far as I can discover, in Greenland, to which this species is stated by the authors of 'The Water Birds of North America' to be an occasional visitor. In winter it reaches Mexico, Cuba and the Bermudas; it is abundant in the Carolinas, which form its southern breeding-limit; and northward it is found up to the St. Lawrence on the east and Alaska on the west, within the limits of forest-growth.

As far as our present knowledge goes, the Hooded Merganser invariably makes its nest in the hollows of trees, and lines it with down, which, according to Mr. G. A. Boardman, is dark-coloured, and not white, as the down of birds which nest in holes usually is. The 5–8 eggs are of a pure ivory-white, and of an oval or almost globular form: measurements 2·1 by 1·75 in. This species feeds on fish; the localities it affects are fresh-water ponds in summer, and deep creeks on the sea-coast in winter.

The adult male has the bill black; irides bright yellow; head and upper neck black, ornamented with a semi-circular crest in which the posterior half is white edged with black; back and wing-coverts black; quills, rump and tail-feathers dark brown; the elongated and slender scapulars and the inner secondaries white, edged with black, lower neck in front white, with two black crescentic bands descending from the upper part of the back and directed forwards; belly, vent and under tail-coverts white; sides waved with yellowish-brown; legs and feet dull red. Length about 19 in.; wing 7·75 in. The female is rather smaller in size, and has an elongated reddish-brown crest; head, hind neck, back, and wings dark brown; chin white; neck in front pale brown, the edges of the feathers lighter in colour; under parts white; bill, irides and feet, as in the male. The young resemble the female for the first year, but during the second the black and white about the head appears in the drakes, and in the third spring their plumage is complete.

THE RING-DOVE OR WOOD-PIGEON.

Colúmba palúmbus, Linnæus.

The Ring-Dove—so called from the white feathers on the neck of the adult—is also well-known in many parts of England as the Wood-Pigeon, and in the North as the Cushat or Queest. Owing to the large amount of land now under turnips and other green crops which supply food during the inclement months, as well as to the increase of coverts and the destruction of birds of prey, the numbers of this voracious species have so far been augmented as to cause serious loss to agriculturists, especially in the Lothians, where the bird was rare a century ago. Immense flights sometimes arrive on the east coast from the Continent, and in October and November 1884 the country between Berwick-on-Tweed and Yarmouth was infested by hungry hordes, while there was a large migration in 1894. On the west side the Ring-Dove is less numerous, though pushing northwards, breeding locally and sparingly in the Outer Hebrides and Orkneys, and visiting the Shetlands. In Ireland, as in Great Britain, it is generally distributed, and its

numbers receive additions in winter. In London every park, and nearly every square, is now frequented by this species.

The Ring-Dove occasionally wanders to the Færoes, and is found in summer over the wooded districts of Europe up to lat. 65°–66° N.; but the northern birds migrate from the colder regions in winter, and join those which are resident in the central and southern districts as well as in Northern Africa. The nearer islands of the Azores and Madeira seem to mark the western limit, while eastward the range cannot be traced with certainty beyond long. 60° E., a meridian which skirts the Ural Mountains and the Persian Gulf.

Breeding begins in March or early in April, while a second clutch of eggs is usually laid in June, and a third brood is often produced in October. The nest, slightly built of twigs laid cross-wise, is placed in almost any kind of tree; frequently in thick ivy on cliffs and old walls, commonly in bushes or hedge-rows, and sometimes on former habitations of other birds or squirrels. The eggs, usually 2, but exceptionally 3 in number, are oval and pure glossy white: measurements 1·6 by 1·2 in. They are laid at intervals of two or three days, and incubation lasts about seventeen; the male, as a rule, sitting in the day-time. The young are blind and helpless till about the ninth day, and remain in the nest until able to fly; being fed at first with a curd-like secretion from the crops of their parents, and afterwards by regurgitated food. Grain of all sorts, peas, young clover, the leaves and bulbs of turnips, beech-nuts and berries, with seeds of a good many plants, form the chief articles of diet. The Ring-Dove is strictly monogamous, and in summer is generally seen in pairs, but in cold weather it becomes gregarious. Exceptionally it has been known to breed in confinement, and also to produce a hybrid with the domestic Pigeon. Its note is the well-known *coo rōō, coo coo.*

The adult male has the head bluish-grey; sides and back of the neck glossed with violet and green, which is bounded on each side by a patch of white; mantle brownish-grey; wing-coverts grey, broadly edged with white, which forms a conspicuous bar; lower back slate-grey; tail-feathers nearly black, except at their bases; breast rich vinous-purple, belly paler, flanks and vent ash-grey. Length 17 in.; wing 10 in. The female is smaller and somewhat duller in colour. The young before their first moult have no white on the sides of the neck, and their tints are less pure, but the adult plumage is assumed the first year. There is only one moult in the year. Varieties more or less spotted with white, and even perfect albinoes, are sometimes met with. Weight, from 17–26 ozs.

THE STOCK-DOVE.

COLUMBA ŒNAS, Linnæus.

The Stock-Dove has often been confounded with the white-rumped Rock-Dove, and the name has even been erroneously supposed to signify that this species was the origin of our domestic breeds, though the prefix really refers to the bird's habit of nesting in the "stocks" of trees: whence also the Danish "Huldue" and the German "Hohltaube," both meaning Hole-Dove. In England the Stock-Dove has greatly increased in numbers of late years, and, though somewhat local, is tolerably frequent in most districts where old timber exists, especially in the remains of our ancient forests, and also in our parks, even when close to London. It inhabits wooded crags in the Isle of Wight as well as similar localities in Wales, the cliffs of Dorset, some parts of Devon, Derbyshire, and even those near Flamborough Head in Yorkshire. In treeless areas, such as are met with in Suffolk, Norfolk, Lincolnshire, the East Riding of Yorkshire, Lancashire, Cumberland &c., it deposits its eggs in rabbit-burrows, or under the shelter of dense furze; while in many places it is persistently misnamed 'Rock-Dove' or even 'Blue Rock' by the inhabitants. In Scotland, as long ago as 1885 it had extended its range as a breeding-species to the sand-hills along the Moray and

Dornoch Firths, while it is now found in Sutherland and West Ross; and it has been obtained from time to time in the Orkneys and Shetlands. In Ireland, where it was first recognised in 1875 by the late Lord Clermont, and was supposed to be confined to the north-east, it is now known to nest also in co. Wicklow and some of the central districts. As a rule, it leaves the northern portions of our islands in October and returns in March.

The Stock-Dove is found in Scandinavia, and in Russia up to about lat. 60°–61° N. as far east as the Ural Mountains; while in many parts of Central Europe it is even more abundant than the Ring-Dove. In the south, as well as in Northern Africa, it is resident in limited numbers, though chiefly observed in winter as a migrant from colder regions; eastward it can be traced in Asia as far as Eastern Turkestan and the edge of the Gobi desert.

As already mentioned, rabbit-burrows, pollards, holes in trees, cliffs &c., are used as nesting-places, to which may be added cross-beams in old churches, matted ivy, former abodes of other birds, and squirrels' dreys. The eggs—usually 2 in number, though 3 have been found—are of a rather more creamy tint than those of the Ring- or the Rock-Dove: measurements 1·5 by 1·1 in. They are often laid by the middle of March, though usually in April, and have been found as late as October. In length of incubation and general habits this species resembles the Ring-Dove, but its note is shorter and less distinct, and has been described as "grunting"; while for its food the Stock-Dove consumes a larger proportion of the seeds of charlock and other weeds, as well as also beech-mast. Its flight is lighter and more rapid than that of its heavier and larger congener. A bird which appeared to be a hybrid between a Stock-Dove and a tame Pigeon was shot in Nottinghamshire (Zool. 1885, p. 150); and Mr. Tomalin has recorded the pairing of a male Stock-Dove with a Ring-Dove.

The Stock-Dove differs from the Ring-Dove in having no white on the sides of the neck, and the nuchal patch of a greener tint; the vinous-purple on the breast hardly comes below the line of the shoulders, while the lower parts are bluish-grey, as in the Rock-Dove; there is no white on the wings, but some black spots on the inner secondaries and wing-coverts form an imperfect bar; the *axillaries* and *under wing-coverts* are *grey*. The whole length is only 13·5 in.; wing 8·8 in. The female is slightly smaller than the male and her colours are less brilliant. The young have no shining metallic feathers on the neck before their first moult, and the dark spots on the wing-feathers are scarcely visible. Weight, about 13 ozs.

THE ROCK-DOVE.

COLUMBA LÍVIA, J. F. Gmelin.

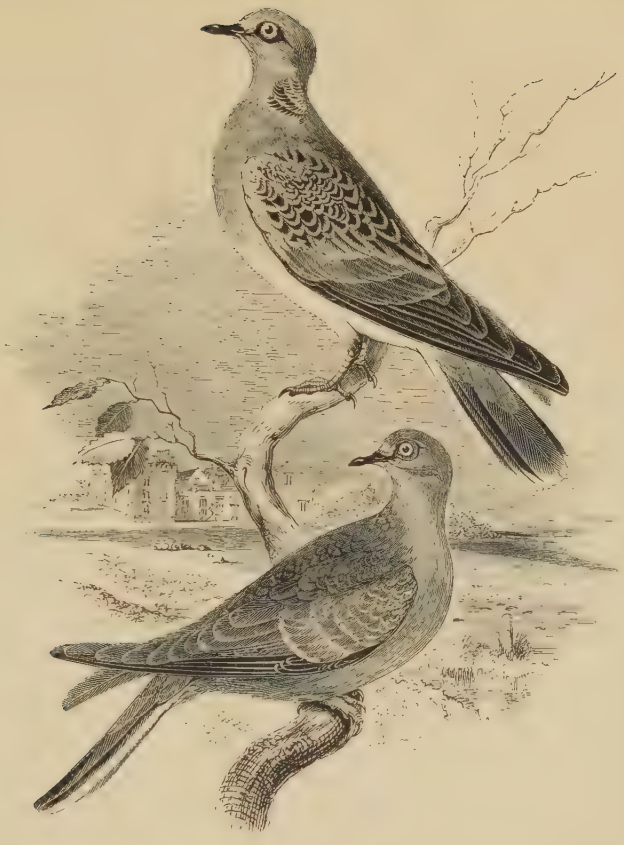
The Rock-Dove is, I believe, only to be found in a truly wild state in localities where caves or deep fissures exist, and such as these are few and far between in the east and south of England. Even in some places which appear to offer the requisite conditions —such as the Channel Islands—this species is little known ; while it is very local in Devonshire, and only a few frequent the cliffs of Cornwall. It can be traced along the coast of Wales and to one spot in Cumberland, as well as to the Isle of Man, while on the eastern sea-board it is found near Flamborough Head. Birds—apparently wild—sometimes frequent holes in cliffs inland, as well as on the coast, but they are open to the suspicion of being partially domesticated individuals which have reverted to a wild state, or the descendants of such. Along the coast of Scotland, from St. Abb's Head northward, the wild Rock-Dove is widely distributed ; while in the Shetlands and Orkneys, as well as in the Hebrides, and along the west side, almost every district has its "Ua' Caloman," or 'doo-cave.' In Ireland, especially among the rugged wave-hollowed cliffs facing the Atlantic, the Rock-Dove is abundant, and there the breed is found in all its purity.

In the Færoes this species is plentiful, but in Scandinavia it is very

local, and in the rest of Europe it is decidedly uncommon, except in mountainous regions, such as the Pyrenees and the various ranges of Spain and Italy; while even there, a considerable admixture of semi-domesticated birds is apparent. Individuals from the Canaries and the coasts and rocky islands in the west of the Mediterranean have generally a distinct band of white on the croup, but, proceeding eastward, this has a tendency to become less pure and narrower than in northern examples, until in specimens from the Jordan valley that part is grey. Birds identical with our own have, however, been obtained in Baluchistan, Afghanistan, Northern India and Kashmir, but about Gilgit and eastward the representative is *C. rupestris*. "There seems," says Darwin, "to be some relation between the croup being blue or white, and the temperature of the country inhabited by both wild and dovecot pigeons; for nearly all the dovecot pigeons in the northern parts of Europe have a white croup like that of the wild European rock-pigeon; and nearly all the dovecot pigeons of India have a blue croup like that of the wild *C. intermedia* of India."

In the British Islands the favourite resorts of the Rock-Dove are deep caverns, on the ledges of which a slight nest is constructed, sometimes as early as March; while young and even unhatched eggs have been found in September, so that at least two broods must be reared in the year. The 2 white eggs measure 1·5 by 1·15 in. Like other members of the family, this species is partial to grain, but it makes amends by eating the roots of the couch-grass (*Triticum repens*), and the seeds of various troublesome weeds, as well as considerable quantities of snails. It drinks frequently, and both wild and tame Pigeons have been seen to settle on the water like Gulls and drink whilst floating down stream. It has a marked objection to alighting on trees—a peculiarity which is still shared by its domesticated relatives.

In size and general hue the Rock-Dove much resembles the Stock-Dove, but the green on the neck is prolonged to the throat; the mantle is of a paler grey; two very distinct black bars cross the wing-coverts and the secondaries; the croup is white, and the black bar near the tip of the tail-feathers is much narrower than in the Stock-Dove; the upper breast is dark grey with hardly any tinge of vinous; and the *axillaries* and *under wing-coverts* are *white*—a very conspicuous distinction in flight. As usual, females are slightly smaller and duller than males; while in the young the metallic tints are wanting.



THE TURTLE-DOVE.

TÚRTUR COMMÚNIS, Selby.

The Turtle-Dove is only a summer-visitor to the British Islands, arriving in the southern districts about the end of April or early in May, according to the nature of the season. In Cornwall, Western Wales, and Lancashire it is infrequent, but it is abundant in the eastern and midland counties, and is now of more or less regular occurrence up to about the line of Sheffield, north of which it is comparatively rare; it has, however, been known to breed in Durham and Cumberland, and is recorded as having done so in Northumberland. Moreover, it probably nests in the south-west of Scotland, while its migrations have extended to the Shetlands and Orkneys

as well as to the Outer Hebrides. In Ireland, as yet it has hardly been known to breed, but as a spring visitor it is on the increase. Departure for the south usually takes place in September, but many birds remain later, and one was even obtained on December 21st 1894 at Penrith (Macpherson); while Col. John Evans had a good view of a bird near Horsham on February 8th 1898, the mildest winter on record.

The Turtle-Dove has been obtained at Quickiock in Lapland, but it is rare to the north of the Baltic, though generally distributed throughout the rest of Europe, and especially abundant in the south at the periods of migration. At that time it is also plentiful in Asia Minor, Palestine and Persia, and has been obtained as far east as Yarkand. Its Asiatic representative is *T. orientalis*, while the Collared Turtle-Dove, *T. risorius*, so often seen in confinement, has its western limit in Turkey. Our bird occurs in Madeira and its islets, the Canaries, and Northern Africa; even breeding in Egypt, though there the more abundant species is *T. isabellinus*. Its migrations extend to about lat. 12° N. in the Red Sea, and to the highlands of Abyssinia.

The nest, very slightly constructed of slender twigs, is usually at no great height from the ground, on the branches of a tree or a thick bush: sometimes an old nest of a Rook is utilized (H. S. Davenport). The 2 eggs, laid late in May or early in June, are of a somewhat creamy-white and rather pointed at one end: measurements 1·2 by ·9 in. The parents take turns in the task of incubation, which lasts about a fortnight, and two broods are sometimes reared in the season. The Turtle-Dove is partial to grain, pulse, and seeds, including those of numerous weeds; like other members of the family, it drinks regularly. Its flight is rapid, and, when amongst trees, remarkably tortuous; the note is a low plaintive *coo*, uttered more especially by the cock bird.

The adult male has the head, nape, outer wing-coverts, rump and flanks bluish-ash; a conspicuous patch of black feathers tipped with white on each side of the neck; feathers of the mantle chiefly cinnamon-brown with dark centres; tail-feathers broadly tipped with white; throat and breast pale vinaceous; belly and under tail-coverts white. Length 11·25; wing 6·8 in. The female is rather smaller, and her tints are browner. In the young before the moult in September (represented by the lower figure) there is no white on the neck, and the upper plumage is suffused with brown.

THE RUFOUS TURTLE-DOVE.

Turtur orientalis (Latham).

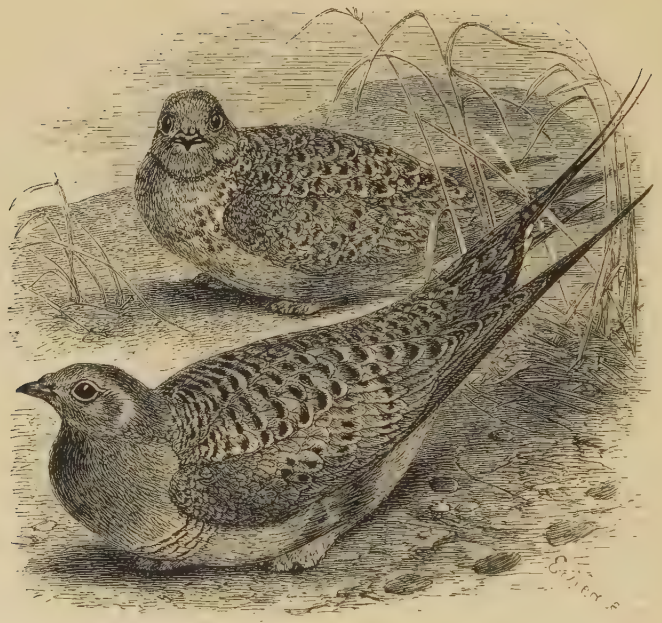
At a meeting of the Zoological Society held on May 6th 1890, the late Mr. Seebohm exhibited a bird of this species which, according to a letter from Mr. J. Backhouse, had been obtained near Scarborough on October 23rd 1889; at the same time and place that a Red-breasted Flycatcher was shot (Pr. Z. S. 1890, p. 361). Through the kindness of Mr. Backhouse and the authorities of the York Museum, I have recently examined this Turtle-Dove, which is a bird of the year, and is the counterpart of one from the mouth of the Amur, in Eastern Siberia, shot on October 13th, and now in the British Museum (Natural History).

A young bird of this species was found in December 1842 among some game from Herjeädale in North Sweden; and in October 1850 a similar example was caught alive near Piteä, in lat. 65° N. The latter was sent to Stockholm in 1851 and lived, under the care of W. Meves, the well-known curator, until 1853, when, having attained its full plumage, it was "made into a specimen." In Asia, the Rufous Turtle-Dove is found from the base of the Eastern Himalayas to Central India, Assam, Tipperah, North Burma, China and Japan; also in Manchuria, and in Southern Siberia from the mouth of the Amur to the Upper Yenesei.

This bird is the *T. meena* of many writers on the birds of India, where breeding seems to take place from December to April. The eggs are oval, white and glossy: measurements 1·15 in. by ·9 in.

The adult male is larger than our Turtle-Dove, and has the black feathers on the sides of the neck tipped with bluish-grey instead of white; the breast and also the belly distinctly vinaceous; the rump slate-blue; the under tail-coverts and the terminal band of the tail-feathers lavender-grey. Length 13 in., wing 7·4 in. The female is rather smaller. The young bird has no neck-patches, and its upper parts are duller in colour, but the rump is distinctly slate-blue.

Five examples of the American Passenger-Pigeon, *Ectopistes migratorius*, have been shot in the British Islands, but it may reasonably be doubted whether any of them had crossed the Atlantic in a wild state. At least one of these had evidently been in captivity, while it is notorious that, from 1830 onwards, many have been brought over and turned loose in this country.



PALLAS'S SAND-GROUSE.

Syrrháptes paradóxus (Pallas).

No event in the annals of ornithology has excited more interest than the irruptions of Pallas's Sand-Grouse. These, as regards the British Islands, were first called to notice by a few appearances in Norfolk, Carnarvonshire and Kent, in July and November 1859; while several examples were obtained on the Continent during the same year. In 1863 the ripples of a far larger wave of invasion spread westward over Europe; Heligoland being reached by May 21st, the date on which our first visitors of that year were shot in Northumberland, out of a flock of fourteen. Next day about twenty reached Staffordshire, and numbers were subsequently found in many parts of the British Islands; the majority on the eastern side, from Kent to Caithness, and a few alighted in the Shetlands. Inland, as well as in the south of England, occurrences were not wanting; and, while they were less plentiful in the west, it was in Pembrokeshire that the last survivor was shot, in February 1864. One bird even wandered to Benbecula in the Outer Hebrides, and several were killed in Ireland, some of them as far west as co. Donegal. All

these, however, were merely the skirmishers of a larger army which arrived in Galizia and Moravia on May 6th, and rolled westward to the Atlantic; spreading southward as far as Rimini in Italy, as well as to the Pyrenees. Northward they reached the Færoes and about lat. 62° in Norway, while a few eggs were taken among the sand-hills of Denmark and Holland. In 1872 small flocks were observed in Northumberland and Ayrshire; in 1876 a pack was seen in May near Winterton in Norfolk, and in October two birds were shot in co. Kildare, Ireland. Incidentally it may be mentioned that the year 1876 witnessed the establishment of an important colony on the Kirghiz steppes beyond the Volga.

In 1888, from the end of February onwards, it was noticed that flocks of Sand-Grouse were in movement on the steppes of Orenburg in Eastern Russia; next, flocks were observed passing over Poland, the Austrian Empire, and various parts of Germany; while by May the invasion had reached the British Islands. The eastern districts were, naturally, the most favoured, and two clutches of eggs were taken on the wolds above Beverley in Yorkshire by Mr. Swailes; but the birds were widely spread over the country, even to the extreme west. In Scotland, where Mr. W. Evans estimated that the sojourners were from 1,500 to 2,000 in number, a young bird was found on the Culbin Sands, Moray, in 1888 by Mr. Alexander Scott, game-keeper to Major Chadwick, who further succeeded in finding another nestling in 1889. This was sent in the flesh to Prof. Newton, and its portrait by Mr. Frohawk, with full description, appeared in 'The Ibis,' 1890, pp. 207–214, pl. vii. As on the former invasion, visitors found their way to the Outer Hebrides, and some also alighted in the Orkneys and Shetlands. In Ireland a considerable number were captured or observed, the migration extending on this occasion as far west as Belmullet, co. Mayo. A special Act of Parliament was passed for the protection of Sand-Grouse in 1888, but very great destruction had already taken place during the summer of their arrival, and the Act did not take effect until February 1889, by which time most of the survivors of the "warm reception" given to the new-comers had succumbed to the moisture of our climate, or had departed for more congenial regions.

On the Continent, the irruption of 1888 reached southward to Valencia in Spain, and northward to lat. 62° 24′ in Norway. The home of this species is to be found from the eastern side of the Caspian to the Tian-Shan and the Altai ranges, all over Mongolia and Southern Daüria, down to the Koko-nor and Tsaidam, and in

winter to the plains of Pechili in China. On the high table-lands of Tibet its representative is its sole congener, *S. tibetanus*.

The eggs, usually 3 in number, are laid in April or May, in a hollow scratched in the sandy soil; they are elliptical in shape, and stone-buff blotched with purple-brown in colour: average measurements 1·5 by 1·1 in. Both sexes appear to incubate, as a male was shot off one of the clutches of eggs obtained by Mr. Swailes. The note has been rendered as *truck-turuk*, or *whirk*, *whirr*, or again as *chak*, *chak*. The food consists of seeds of plants, such as chick-weed and corn-spurrey, as well as of seeds of clover, turnip and rye; with some insects. The flight is rapid, and very like that of the Golden Plover. The birds have a habit of almost burying themselves in the sand, with which their colour closely assimilates.

The adult male has the head yellowish-grey; chin whitish, throat pale rust-colour; back, scapulars and rump warm buff, barred with black; quills bluish-grey, as are the long and pointed central tail-feathers; neck and breast greyish-buff, crossed by a mottled black gorget; belly banded with black; feathers of the vent and of the feet down to the toes dull white. Length 14·75 in.; wing 9·1 in. In the female the head and sides of the neck, and the upper parts generally, are striped and spotted with black, a band of the same colour crossing the upper throat; the general hue is duller, and the central tail-feathers are shorter. The young resemble the adult female, but have all the neck and chest spotted with irregularly-shaped blackish-brown marks, and the black bars on the inter-scapular region and the round subterminal spots on the less and median wing-coverts much less regular, being broken up into variously-shaped marks; the filiform ends to the primaries and the tail-feathers (which are conspicuous in the adult) are not developed (Ogilvie Grant).

THE CAPERCAILLIE.

TETRÁO UROGÁLLUS, Linnæus.

The Capercaillie—also known as the Wood-Grouse, and the male as the Cock-of-the-wood—was formerly an inhabitant of the pine-forests of the British Islands ; but at some remote period it became extinct in England and Wales, while in Scotland and Ireland the same fate appears to have overtaken it in the second half of the last century. In 1837 its re-introduction from Sweden was successfully accomplished in Perthshire, and from that county, Forfarshire, and some other centres of distribution, it has now spread over the central districts as far as Loch Lomond, East Stirlingshire and Fife, while its further extension seems chiefly a question of time. Already the

area of coniferous woods has proved too restricted, and the species is now often found in coverts largely consisting of oak and birch. The females precede the males by one or two years in the search for new quarters, and under these circumstances they often breed with the Blackcock; the male hybrid being a remarkably handsome bird, with plum-coloured breast and a slightly forked tail.

The Capercaillie inhabits the pine-forests of Scandinavia up to lat. 70°, and in Denmark its remains are found in the kitchen-middens of the prehistoric races who lived before the fir-woods had given way to the oak and the birch. It is still abundant among the conifers of Russia, but is decreasing in those of Poland, Northern and Central Germany, the various branches of the Alps and Carpathians, the Balkans, the Pyrenees, and the Cantabrian range. In the Caucasus it is unknown. It is found from lat. 67° N. in Siberia down to the Altai Mountains and north-eastern Turkestan, and as far as Lake Baikal; east of which it is represented by two forms which have the scapulars broadly tipped with white, and in males from Kamchatka the white forms a complete bar.

Early in spring the male Capercaillie begins his love-song of *peller*, *peller*, *peller*, to attract the hens, at the same time erecting his tail and drooping his wings in a sort of ecstasy: a proceeding known as his "play" or "spel," and which is repeated for a short time about Michaelmas. The nest is a hollow scraped in the ground under a tree or bush, the 6–12 eggs being pale reddish-yellow, with brown spots and blotches: measurements 2·2 by 1·5 in. Incubation lasts about a month, and the young are usually hatched early in June. The food of the adults consists of tender shoots of the Scotch fir (rarely of the spruce), with various berries in summer; the young eat insects, worms &c. The name Capercaillie is, I believe, derived from the Celtic *gabur* a goat—with allusion to the elongated chin-feathers of the male and his amorous behaviour in spring—and *coille* a wood: *i.e.*, 'goat of the wood'; but some authorities prefer *cabhar* an old man, or *gobur* a horse.

The adult male has a strong hooked bill; upper plumage chiefly dark slate-grey, nearly black on the tail; chest dark glossy-green; lower parts almost black; legs covered with hair-like brown feathers, short in summer, but overhanging the toes in winter. There is great variation in size: average length 35 in.; wing 14·5. The female is much smaller, and the general colour of her upper plumage is brown mottled with buff and white; the neck and breast are orange-buff, barred with black and spotted with white.

THE BLACK GROUSE.

TETRAO TÉTRIX, Linnæus.

Birds of this species are generally known collectively as Black-game, and in Devon and Somerset as Heath-poults; the sexes being distinguished as the Blackcock and the Greyhen. They are found, in small numbers and locally, in Cornwall and South Devon, and are tolerably plentiful on Exmoor, as well as on the Brendons and the Quantocks, in Somersetshire; while they still maintain themselves in Dorset, Wilts, and the New Forest district. In Sussex, Surrey and Berkshire their presence is the result of reintroduction early in the present century, and none are now to be found in Kent, where, however, the species existed in the time of Henry viii.; and it is in an ordinance for the regulation of the royal household dated from Eltham that the word 'Grouse' makes its first appearance in

our language as 'Grows.' The bird has been introduced near Sandringham in Norfolk; while it is scattered locally over the wilder portions of the Midland counties, the Marches, and many parts of Wales, and north of Sherwood Forest it is found in every English county. In Scotland it is distributed, in varying numbers, over the mainland and in many of the Inner Hebrides, but attempts at introduction in the Outer islands, as well as in the Orkneys, have not been successful. In Ireland it was never indigenous.

The Black Grouse inhabits Scandinavia, Russia, the heath-clad wastes of the east of Holland, the hilly districts of Germany and Central Europe, Switzerland (except the Jura), and the northern Apennines. It is not found in the Pyrenees; while in the Caucasus it is represented by a smaller and more slender species, the male of which has a deep glossy-black plumage and a remarkably developed tail. Beyond the Ural Mountains the Black Grouse stretches across the wooded regions of Siberia up to 67° N., and as far south as Manchuria.

Blackcocks are polygamous, and in spring they assemble before dawn to fight for the hens, performing the most extraordinary antics in order to prove attractive. When this *lek* is over they retire with the females they have secured, and the latter make a slight nest on the ground in which they deposit 6–10 eggs of a yellowish-white spotted with orange-brown: average measurements 2 by 1·4 in. The males have also a short "spel" in autumn, when they separate from the females and flock together. The young feed largely on ants' eggs and other insect food, while whortleberries &c., barley, the juicy seeds of rushes, and the tops and buds of many other plants are favourite articles of diet with the adults; abundance of moisture being at all times essential. Interbreeding with the Capercaillie has already been noticed; it is not infrequent with the Pheasant; and it occasionally takes place with our Red Grouse, the Scandinavian Willow-Grouse and the Hazel-Grouse.

The general colour of the Blackcock is bluish-black; the wing-bar and the under tail-coverts being white. Length 23 in.; wing 10·3. The Greyhen is chiefly pale chestnut-brown, barred and freckled with black; wing 9 in. The latter breeds in her first spring, but the young males are liable to be driven away by the older and stronger cocks. The young male is at first like the female, but the dark plumage begins to show early in October, and is nearly full by December, although the full development of the out-curved tail-feathers is not attained till the third year.

THE RED GROUSE.

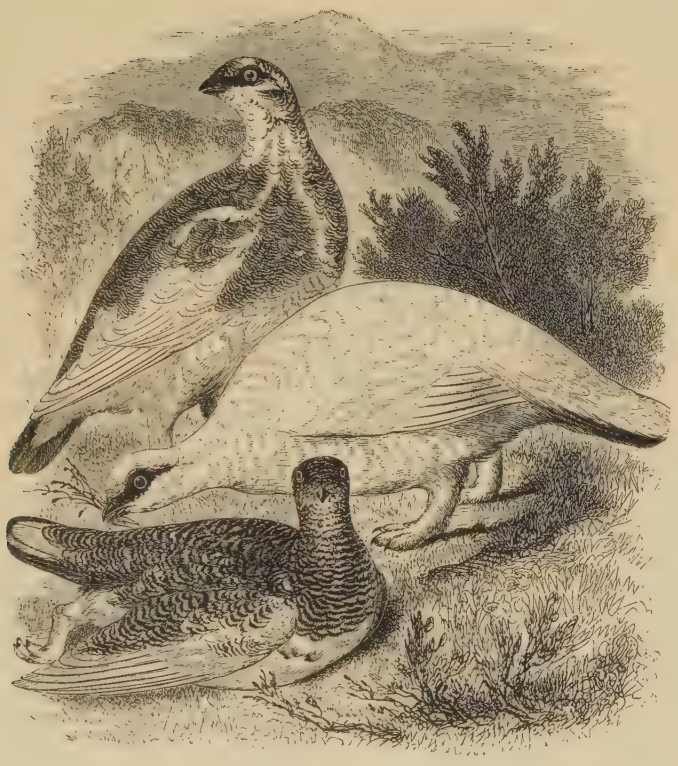
LAGÓPUS SCÓTICUS (Latham).

This species, indigenous only to the British Islands, is our representative of the Willow-Grouse (*L. albus*), the latter inhabiting the northern portions of Europe, Asia and America. In Scotland, from which the Red Grouse derives its specific name, the bird is generally distributed over the moors of the mainland, from the highest point where ling (*Calluna*) and heath (*Erica*) flourish, down to the coast-line; while it also occurs in the Inner and most of the Outer Hebrides, and remarkably fine specimens are produced in the Orkneys. In England the Red Grouse is found from the northern counties—especially Yorkshire and Derbyshire—down the Pennine

range as far as the Trent, as well as in Lancashire, Cheshire, Staffordshire, Shropshire, and on most of the Welsh moors to Glamorganshire ; but to the south-east of these lines it has never succeeded in maintaining itself, though introduced on the heaths of Surrey and elsewhere. It is resident on most of the moorlands and peat-bogs of Ireland, but is far less abundant there than in Scotland or the north of England. About thirty years ago it was acclimatized in the district of Gottenborg, South Sweden, and introduction has been essayed in North Germany.

Red Grouse pair very early in spring, the female making a scanty nest in some depression in the ground, under shelter of a tuft of heather. The 8–10 and sometimes 15 eggs are of a buffish-white ground-colour, mottled with rich red or brown : measurements 1·75 by 1·2 in. Incubation, which lasts 23–24 days, does not become general until April, though eggs have been found by March 17th. The female sits very close, the male being usually at no great distance, while on the approach of danger he emits a warning *kok*, *kok*, *kok*. He is also in the habit of standing on a hillock and uttering a peculiar crow at dawn, especially on clear, frosty mornings ; the note of the hen being a strange nasal croak. The young leave the nest soon after they are freed from the shell, and, with their parents, feed on the leaves and fruit of the bilberry &c., the tips of ling- and heath-shoots, and, occasionally, grain ; the principal feeding-time being, as a rule, late in the afternoon. Unlike its congener the Willow-Grouse, our bird seldom perches on trees or bushes, though it often sits on earth-dykes and walls. In severe snowy weather Grouse are driven from the higher moors to the lowlands, and have been known to wander so far that they seem to have completely lost the bearings of their old haunts. The causes of the disease to which they are subject have been much disputed ; but as long ago as June 1815 a severe outbreak in the Reay country, Sutherland, was on record (Zool. 1887, p. 302).

Mr. Ogilvie Grant considers that the male presents three distinct types :—a form in which the general colour is red ; a form much spotted with white on the breast and belly ; and a black form, often mixed with the two preceding. The complete moult begins after breeding ; a change in plumage taking place early in winter. Length 15 in. ; wing 8·25 in. The female (represented in the foreground) is rather smaller and exhibits much more of a yellowish-chestnut tint : she assumes a distinct breeding-plumage early in May, and has a complete moult in autumn. The young moult completely in their first autumn.



THE PTARMIGAN.

LAGOPUS MÚTUS (Montin).

As regards Great Britain, the Ptarmigan is now confined to Scotland; but there are traditions of its occurrence in former times on the fells of Cumberland and Westmorland. Investigations by Mr. R. Service (Zool. 1887, pp. 81–89) have shown that a few birds existed in the highest portions of Dumfriesshire and Galloway until about 1822, when the last were captured near Sanquhar, but a subsequent attempt by the late Duke of Buccleuch to re-stock that district proved unsuccessful; while on Arran, though at one time re-introduced, its presence is now doubtful. A few pairs survive on the Paps of Jura, and gradually decreasing numbers are found in Skye, Harris, and Lewis. From the vicinity of Ben Lomond northward, the Ptarmigan inhabits the "region of stones" on the higher mountain-masses, especially in Perthshire, Aberdeenshire, Inverness-shire, Ross, and Sutherland. In Ireland it is unknown.

The Ptarmigan is resident in the Lofoden Islands, and on the fells of Scandinavia above the limits of tree-growth, as well as in the loftier portions of Finland, the Kola Peninsula, and the Ural Mountains. It is found in the French, Swiss, and Italian Alps, and in small numbers in Tyrol, Styria, and Carinthia, though no longer in Transylvania; while in the Pyrenees it is tolerably abundant near the snow-line, and it is said to occur in the mountains of the Asturias and Leon. In Asia, our Ptarmigan appears to inhabit all the high mountains of Siberia down to the Altai and as far east as Kamchatka, and a bird (not in summer dress) obtained near Yokohama in Japan, at an elevation of more than 9,000 ft., has been ascribed to this species. On the lower ground of Northern Siberia and Arctic America, as well as in Greenland and Iceland, its representative is the browner *L. rupestris*, or some closely-allied form; but the larger *L. hemileucurus* of Spitsbergen is more nearly related to the Willow-Grouse.

The nest is a hole scraped in the soil and scantily lined, while the 8–10 eggs, laid late in May, have the ground-colour, as a rule, rather lighter than in those of the Red Grouse, and are smaller in size, measuring about 1·7 by 1·1 in. In wet or stormy seasons the various families associate or 'pack' by the beginning of August, but otherwise not till winter; they are scarcer on the extreme summits of the mountains than at a lower elevation, and birds shot in the highest situations are usually small in size. The food consists of the green tops of ling &c., with various kinds of berries. In Scotland the Ptarmigan suffers from disease, like the Red Grouse.

The male in summer has a red wattle over each eye; lores blackish; head, upper parts, long tail-coverts and flanks dark brown, finely mottled and barred with greyish-brown; tail-feathers sooty-black, tipped with white; belly white. Length 14·5 in.; wing 7·75 in. The plumage of the female is orange-tawny, barred with black. In both sexes and at all seasons—except for the short time that the young are in nesting plumage—the wings are white, with dark shafts to the quills. In autumn the male has upper parts slate-grey finely vermiculated with black; the female is browner. In winter both sexes are white, but the male may be recognised by his black lores and eye-stripes; old females, however, sometimes exhibit the latter. More than nine-tenths of the so-called 'Ptarmigan' sent over to our markets are Willow-Grouse in winter dress; these may be known by their larger size, and as regards the males—by the absence of any black on the lores.

THE PHEASANT.

PHASIÁNUS CÓLCHICUS (Linnæus).

There is evidence that the Pheasant had become naturalized in the south of England before the Norman invasion, though there is no mention of its existence in Scotland until 1594, or in Ireland till 1589. At the present day, however, it is generally distributed throughout the United Kingdom, and it has even been acclimatized in some of the Outer Hebrides. Little, if any, deviation from the typical *P. colchicus* took place up to the end of last century, when the introduction of the Chinese Ring-necked *P. torquatus* com-

menced, which has left almost indelible marks, especially with regard to the characteristic white collar. Fertile hybrids have also been produced with the beautiful green-tinted Japanese *P. versicolor*, and the splendid long-tailed Chinese *P. reevesi*; the so-called "Bohemian Pheasant" being merely a pale buff-coloured variety.

The Pheasant owes its generic and specific names to its traditional introduction from the banks of the Colchian Phasis—the modern Rion—which enters the Black Sea near Poti; and there the pure breed is still to be found. Westward, it inhabits portions of Asia Minor, Turkey, Greece, Albania and Roumelia, but it may be doubted whether it is indigenous to the northward of the Balkans, though it is found wild in Corsica. Under greater or less protection it is met with in nearly every country of Europe, up to the southern districts of Sweden and Norway. Eastward, its range extends along the southern shores of the Caspian about as far as Astrabad, beyond which a desert cuts it off from the various species which inhabit Afghanistan, Turkestan, Mongolia, and China.

The short crow of the males may be heard in March, when fighting takes place for the possession of the hens, which, as a rule, begin to lay in April. From 10–14 eggs, measuring about 1·85 by 1·45 in., of an olive-brown or sometimes a pale blue colour, are deposited in a slight nest on the ground; but exceptionally squirrels' dreys and former habitations of other birds in trees are selected. Incubation lasts 23 days. Several hens will sometimes sit amicably on the same nest, as they will do with Partridges and domestic fowls; while in a few instances cock-birds have been seen incubating as well as rearing the brood. The natural food consists of grain, berries, acorns and other vegetable matter, snails, and an enormous number of wire-worms and injurious insects; ants and their larvæ forming the chief sustenance of the young. Water and cover are indispensable, though trees are not absolutely essential, for Pheasants do not constantly roost in them during the summer. When well on the wing their pace is tremendous, and they have been seen to fly nearly four miles at a stretch; they also swim with considerable facility. Hybrids have been produced with Black Grouse and several other species of gallinaceous birds. A partial assumption of the male plumage by females which are old or have ceased to breed is not uncommon.

Space does not allow of a description of the Pheasant, now seldom—if ever—found pure-bred in this country. The average weight of an old cock-bird is from 3–3½ lbs., and of a hen about 2½ lbs.

THE COMMON PARTRIDGE.

PÉRDIX CINÉREA, Latham.

The Common or Grey Partridge is generally distributed throughout England, and is nowhere more abundant than in East Anglia and Hampshire. The cultivation of grain is undoubtedly favourable to its increase in numbers as well as in size, but birds which have fed on heather, whortleberries &c., in wild moorland districts are by no means inferior in point of flavour. In Scotland the Partridge is local, though plentiful on some of the low grounds; but it is not widely diffused in the Inner Hebrides, nor does it thrive in the Outer islands, to which, as well as to the Orkneys, it has been introduced. In Ireland its numbers have diminished of late years, from various causes, chiefly poaching.

In Norway this species exists under difficulties, owing to the rigour of the winter and the abundance of birds of prey, especially the Goshawk; nor can it be said to flourish in any part of Sweden. It is found in Denmark, Germany, Holland, Belgium, and France

down to the Rhone delta, as well as on the eastern side of the Adriatic; but in the south, as a rule, it frequents the higher ground, and yields the plains to the Red-legged Partridge. It occurs on both sides of the Pyrenees up to 4,000 ft., and as far as the valley of the Douro in the Spanish Peninsula, especially in the moister regions to the west; in Italy it ranges to Naples, and in Central and Eastern Europe it is abundant. It can be traced to Asia Minor and the mountainous districts of Persia, and it also inhabits the south-west of Siberia, a larger and greyer race being found in the Altai Mountains; while eastward the representative is the smaller *P. barbata*, the male of which has a golden-buff breast, and a deep black 'horse-shoe' mark below.

The Partridge often pairs in February, but eggs are seldom laid until the end of April or the beginning of May. From 12–20 of these are often produced by a single hen; but as many as 33 have been found in one nest, from 23 of which the young were hatched and went off with the old birds, while 4 of the eggs left behind had live chicks in them. The usual colour of the shell is olive-brown, but pale blue or whitish varieties are not very uncommon: measurements 1·45 by 1·15 in. Incubation lasts 21–23 days. The young are attended by both parents with great assiduity, and I have seen the old birds show a bold front to a female Hen-Harrier for several minutes, while covering the retreat of their brood to the shelter of a hedge. The food consists of green leaves, grain, many species of insects, small snails &c. Breeding takes place in the first spring, but the old males are very pugnacious and molest the younger birds.

The adult male may be distinguished from the adult female by the brighter yellowish chestnut on the head and throat, the greyer neck, and the dark brown 'horse-shoe' mark on the lower breast; but in many districts *young* females (of the year) have this mark very fully developed, though old hens have not. At all ages, however, the wing-coverts have buff *cross-bars* in the *female*, whereas there is only a longitudinal stripe in the male (Ogilvie Grant). The legs and feet are bluish-white in the adults, but yellowish-brown in the young, which resemble the female in plumage. Average length 12·5; wing 6 in. Varieties are common, but they are mostly found in young birds, though in some cases they seem to be connected with the nature of the soil frequented; Partridges from the clay being often poor in colour, while those from the gravel are very warm in tint. In some parts an increasing tendency to a white 'horse-shoe' is apparent; while a black 'horse-shoe' has been found.

THE RED-LEGGED PARTRIDGE.

CÁCCABIS RÚFA (Linnæus).

This species—often called the French Partridge—belongs to a well-defined group; the members of which resemble each other in their partiality for dry or mountainous districts, their main pattern of coloration, the similarity of the sexes in plumage, and the presence of blunt spurs on the legs of the males. The Red-legged Partridge was successfully acclimatized in England about 1770, when large numbers of eggs were hatched under domestic fowls on two estates in Suffolk; and as the result of this and subsequent introductions it is now thoroughly established, not only in the above county, but also in Norfolk, Lincolnshire, Cambridgeshire, Essex, some of the Midlands, and on dry ground along both sides of the Thames valley. Owing to similar but independent centres of dispersal, and a natural tendency on the part of the bird to seek congenial situations, it is also found in many other districts; but under no circumstances has it thriven in the west, or on rich grass-lands, and its stronghold is in East Anglia. There it has even resisted attempts to exterminate it, made under the belief that it harassed the Grey Partridge, while its habit of running used to render dogs unsteady and precluded the possibility of walking it up;

but since 'driving' became a system, the only objection to it is its inferiority for the table. Attempts at introduction on the mainland of Scotland and in the Orkneys have failed; nor have those made in Ireland since 1844 been successful. There is no evidence that this species undertakes long migrations from, or on, the Continent.

In the Channel Islands the Red-legged Partridge is an alien, while it is decidedly rare in Normandy and the north of France, and in Belgium it is almost unknown. In the centre, east, and south of France it is generally distributed, and it is the only red-legged species indigenous to the Spanish Peninsula. On the Rock of Gibraltar the Barbary Partridge (*C. petrosa*), with *brown* nape and collar, has been introduced from Morocco; and its eggs have occasionally been hatched in England, but the bird has never maintained a footing here. The Red-legged Partridge is also found in the Azores, Madeira, and on the island of Gran Canaria: probably introduced by the early settlers. In the Alps and the Apennines its progress eastward is barred by the presence of the larger and stronger *C. saxatilis*, which also occupies Sicily; Sardinia is held by the Barbary Partridge; but the Balearic Islands, Elba, Corsica, and part of North-western Italy are left to the 'French' bird. Few species bear confinement better, for thousands of birds are carried about in cages during the greater part of their lives, owing to the southern practice of using them to lure their wild relatives within shot.

The scanty nest is usually on grassy banks, often in thick brushwood, and not infrequently in the side or on the top of a stack; the 15–18 eggs are yellowish-white, speckled with rufous-brown: measurements 1·6 by 1·25 in. Incubation lasts 23 days. The food consists of leaves, seeds and insects, obtained chiefly on waste land of a drier and more open nature than that frequented by the Grey Partridge. The latter is seldom interfered with; the two species living apart, and very rarely interbreeding. The Red-legged Partridge occasionally perches on trees, and may often be seen on gates and palings. The note is a grating *chuk*, *chuk*, *chukar*.

The adult male has the bill red; crown grey; a black streak from each eye backwards and downwards to a gorget of the same colour; general upper parts hair-brown; tail-feathers chestnut; throat white; breast pearl-grey; belly fawn-colour; flanks greyish, handsomely barred with black and chestnut; legs red, with rudimentary spur-knobs. Length 13·5 in.; wing 6·25 in. The female is rather smaller and duller in colour, without any knobs on her legs. The young have no grey on the throat and hardly any black on the gorget.

THE QUAIL.

Cotúrnix communis, Bonnaterre.

The Quail is principally a spring-visitor to the British Islands, and the majority leave for the south in October; but in mild winters some remain with us—especially on the west coast of England; while in Ireland, up to about 1865, this species might be considered as partially resident, though of late years a marked and unaccountable diminution in its numbers has been noticed. In England, before drainage and high cultivation had broken up the coarse tussocky land in which the Quail delighted, it was far more plentiful than it is at present, particularly in Hertfordshire, Cambridgeshire, Suffolk, Norfolk, Lincolnshire, Lancashire &c.; but from time to time unusual influxes take place. One of these extended in 1870 from East Anglia to Cardigan, Pembroke and Cornwall; in 1885 a remarkable increase was noticed on the high ground along the north side of the valley of the Thames and as far as the Severn; while in 1892 there was a marked accession, and a still larger immigration occurred in 1893. Northward, the Quail gradually becomes less numerous, yet nests have been found in Scotland as far as Caithness, Sutherland, the Orkneys and the Shetlands, several times

in the Outer Hebrides, and not infrequently in the south-west of the mainland.

In summer the Quail is found in the Færoes, and, though sparingly, as far north as lat. 65° on the Continent, while southwards it becomes more abundant, and immense flocks annually visit the countries bordering on the Mediterranean ; especially on the spring migration, when, as of old in Sinai, multitudes come up in the night and cover the land. The majority pass northwards, though many remain to breed ; in autumn, on the other hand, a considerable number sojourn in the south of Europe and the north of Africa, though the majority go further, and many reach Madagascar, Mauritius and the extreme south of Africa. There, as well as in the Cape Verde Islands, the Canaries, Madeira and Azores, a resident form (*C. capensis*) is found, and with this our migratory bird often interbreeds. Our Quail is widely distributed over temperate Asia, crossing the Karakoram (16,000 ft.) and other ranges on its migrations ; while in Japan, Formosa, China, Burma and the North-east of India it meets and breeds with another resident form, *C. japonicus*.

The nest—a mere hole scraped in the ground, lined with a few plant-stalks—is often in a wheat-field, but sometimes in clover or grass ; and the eggs, 7–12 in number, are yellowish-white, blotched or speckled with umber-brown : average measurements 1·1 by ·9 in. Incubation lasts about three weeks, and two broods, or "bevies" as they are called, are sometimes reared in the season. The food consists of slugs and insects, plantain, chickweed &c.—no less than 3,500 seeds of the latter having been found in the crop of a single bird. The male utters three castanet-like notes, which is generally rendered in this country by the words "wet-mý-lips," while the call of the female is a soft *few, few*. As a rule the male is monogamous.

In appearance the Quail resembles a miniature Partridge. The male (in the foreground) is rather smaller than the female (in the background), and has two dark brown bands descending from the ear-coverts, terminating at the throat in a blackish patch which is not acquired until the second year. Length of the female 7 in. ; wing 4·4 in.

Two examples of the Andalucian Hemipode, *Turnix sylvatica*, are said to have been obtained in Oxfordshire, and a third in Yorkshire. No one who knows how sedentary and local this species is, will believe it to have been a genuine visitor.

THE LAND-RAIL.

CRÉX PRATÉNSIS, Bechstein.

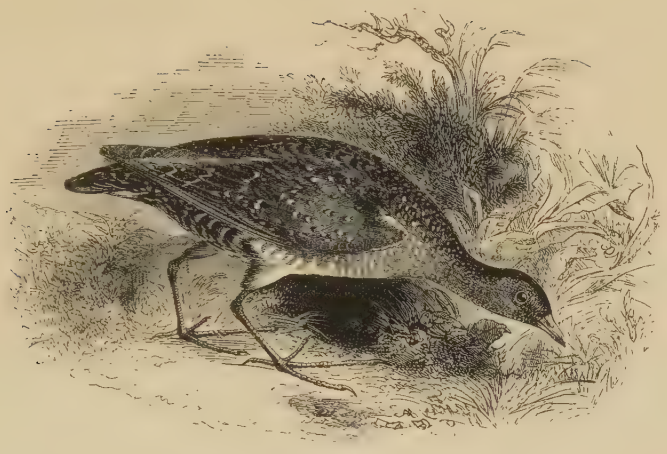
The Land-Rail, also known as the Corn-Crake, is widely distributed in summer throughout the British Islands. It usually makes its appearance in the southern counties of England during the last ten days of April, though in Yorkshire and northward it is seldom heard till the first or second week in May, and only towards the end of that month in the Shetlands. Westward, it has been obtained in St. Kilda, and it is common in the Outer Hebrides, where it is probable that a few birds occasionally pass the winter. This is undoubtedly the case in Ireland, and, more rarely, in England; but the majority have taken their departure before October. The bird may be found wherever there is grass-land.

This species occasionally breeds in the Færoes, but its occurrence in Iceland has not been authenticated, though an example was obtained in South Greenland in 1851 and another in May 1892. Individuals which had, no doubt, availed themselves of the assistance of vessels, have frequently been obtained of late years on the eastern sea-board of the United States; and in October 1847 one was shot in the Bermudas. As a wanderer the Land-Rail has been found in the Azores and Madeira, while in the southern countries of Europe

it is of regular passage in spring and again in autumn; not nesting, I believe, below the line of the Pyrenees, but continuing its course to the central and northern districts, or even the Arctic circle. In Asia it is found as far east as the Lena, though not recorded from China or Japan; Dr. Scully obtained an example at Gilgit in October; and it breeds in Western Turkestan. In winter it visits Arabia, while in Africa it is found down to Natal and occasionally in Cape Colony.

The nest, composed of bits of dry plants and herbage, is generally among long meadow-grass, where the mowing-machine plays havoc with sitting birds and eggs; but it is not infrequently in standing corn or clover, and thus escapes notice until the brood is safe. The 7–10 eggs are usually laid towards the end of May or early in June, and are pale reddish-white, spotted with grey and rufous-brown: measurements 1·45 by 1·1 in. The 'creaking' call-note uttered by the male—especially towards evening—can easily be imitated by passing the edge of the thumb-nail across the teeth of a comb, and by this means the bird may be lured to within a short distance: the ventriloquial powers attributed to this species are, in my opinion, due to the rivalry of two birds, as well as the marvellous rapidity with which the Land-Rail sneaks, unperceived, from one spot to another. It does not take wing readily, and flies slowly, with its legs hanging down; while, if closely pressed, and especially if wounded, it will elude even a dog by climbing among tangled bushes, and when captured it will not infrequently feign death: a device common to other members of the family. The food consists of worms, slugs, insects, small lizards, plants, seeds &c.; the flesh is highly esteemed for the table.

The adult male has ash-grey patches above each eye and on the cheeks; feathers of the upper parts yellowish-brown with dark centres; wing-coverts and quills chestnut; throat white; breast greyish-buff; belly nearly white in the centre, the flanks broadly barred with cinnamon-brown and buff; bill, legs and feet pale brown. Length 10·5 in.; wing 5·25 in. Females are rather smaller, and, like the young of the year, have the grey on the head and the chestnut on the wings less pronounced; the male loses the grey on the head and flanks after the autumn complete moult, but assumes that colour in spring. The nestlings, which are at first covered with black down, are able to fly in about six weeks. The usual weight of an adult is 6–7 ozs., but a bird of nearly 9 ozs. is on record. Albinoes and other varieties are sometimes met with.



THE SPOTTED CRAKE.

PORZÁNA MARUÉTTA (Leach).

This species, smaller in size than the Land-Rail, is also a regular spring-visitor to England, but owing to the drainage of the fens and the reclamation of marsh-land, it is far less plentiful than formerly, In two excellent articles by Mr. O. V. Aplin (Zool. 1890, pp. 401–417 and 1891, pp. 88–96), the collected evidence indicates that the bird often arrives in Sussex and other southern counties by the middle of March, and breeds wherever it finds localities suitable to its habits ; though often supposed to be rarer than is really the case, owing to its skulking habits. Among its known nesting-places may be mentioned East Anglia, the Humber, Trent and Solway districts, Durham and Northumberland, as well as several of the southern counties, and the bogs of Breconshire in Wales. The majority leave in October, but some remain through the winter, especially in the south and south-west. On the east side of Scotland, where it is chiefly seen in autumn, it has nested as far north as Elgin, while on migration it has occurred in the Orkneys and thrice in the Shetlands (in October) ; on the west it has bred in Kirkcudbrightshire and Dumfriesshire, but has seldom been recorded north of the Clyde. In Ireland, where it is rare, its occurrences are chiefly in autumn, but its eggs have been found in Roscommon, and a nestling in Kerry.

Although the Spotted Crake has twice been obtained in Greenland, it has not yet been noticed in Iceland or the Færoes. On the Continent its northern range extends to about lat. 65° in Scan-

dinavia, though not quite so far in Russia; and southward, it is generally abundant in suitable localities during the summer months; visiting Heligoland (in small numbers) on both migrations, especially in that of May. In the marshy portions of France, Central Europe, Italy and Sicily it breeds freely, but in the Spanish Peninsula it is chiefly a migrant; as a wanderer it has been obtained in the Canary Islands; while it is found in winter along Northern Africa, and as far south as Abyssinia. In Asia it ranges eastward in summer to Yarkand and southward to Gilgit, while on its way to India in September it—like the Quail—crosses the lofty Karakoram.

The nest, usually placed in a thick reed-bed or in a tussock of sedge surrounded by water, is formed externally of long flags, with a cup-shaped centre lined with fine soft grass. The 8–10 eggs are of an olive-buff ground-colour, spotted and flecked with dark reddish-brown: measurements 1·3 by ·9 in. The young, which are at first covered with lustrous greenish-black down, take to the water very soon after they are hatched. The call-note is a peculiar *whuit, whuit.* Meadows margined by streams and ditches are the favourite resorts of this species, but little can be seen of it without the assistance of one or more good dogs, and, when pursued by these, it will flutter up into a tangled growth of brambles, from which it can only be thrashed out with difficulty. The food consists of worms, slugs, and aquatic insects, with vegetable substances.

The adult male has the bill yellowish, tinged with red at the base; eye-stripes, face and throat dull grey; crown dark brown; upper parts generally olive-brown with darker streaks, and minute spots of white, which are thickest on the neck and the tail-coverts; breast brown, spotted with white; belly dull grey; flanks barred brown and white; legs and feet yellowish-green. Length 9 in.; wing 4·5 in. The female is slightly smaller and duller in colour. In the young bird the throat is white, and the spots are less pronounced.

A specimen of the Carolina Crake, *P. carolina*, shot near Newbury, Berks, was exhibited at the meeting of the Zoological Society, February 14th 1865, by Professor Newton, who remarked upon the powers of endurance in their flight of various members of the family Rallidæ, and upon the capture of this species on one occasion in Greenland. In the 'Field' of December 4th 1897, Mr. C. Clive Bayley records that two came on board the yacht Vampa in about lat. 20° N. and long. 55° W.; one of them taking food freely and reaching England alive. The adult may be distinguished from the European bird by its black face.

THE LITTLE CRAKE.

PORZANA PÁRVA (Scopoli).

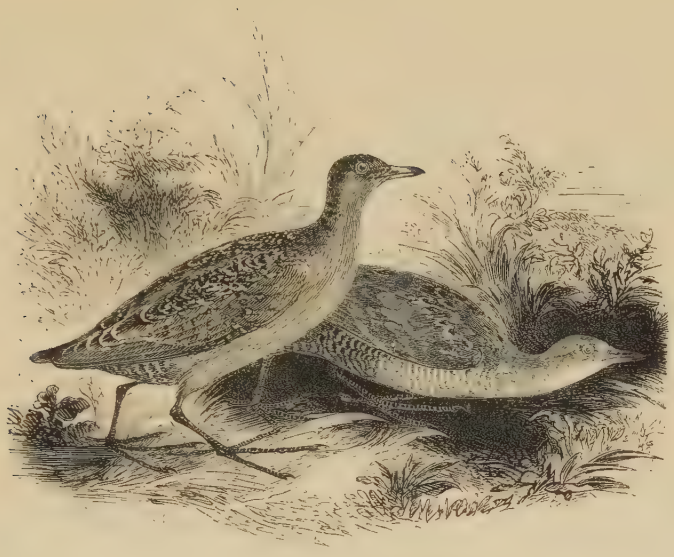
This Crake—also called, from its colour, the Olivaceous Gallinule—is, on the whole, a rare visitor to England, though in Norfolk at least eleven authenticated examples have been obtained since 1809, and a much larger number of such an inconspicuous species must have escaped notice. Specimens have also been recorded from Suffolk, Cambridgeshire, Lincolnshire, Yorkshire (several), Lancashire, Cumberland (two), Oxfordshire, Middlesex, Kent (by Markwick in 1791), Sussex, Hants, Dorset, Somerset, Devon (several) and Cornwall; while other counties have no doubt been visited, though the bird has not always been accurately distinguished from the still smaller Baillon's Crake, next in order. As regards Scotland, a specimen preserved by Thomas Edward of Banff in March 1852 is in the collection of Mr. J. H. Gurney. In Ireland, the only authenticated example is one which was shot at Balbriggan in March 1854; a bird recorded under this name from Queen's Co. having proved to be a Spotted Crake. There is no evidence that the Little Crake has nested with us, and all its visits have been in spring and autumn.

This species is said to have bred in the south of Sweden, and on migration has occurred in Denmark as well as once on Heligo-

land. It nests, somewhat sparingly, from Holstein eastward, and along the southern side of the Baltic as far as Livonia, as well as in Central Russia; more abundantly in Poland, Southern Germany, Austro-Hungary, Central France, Savoy and the Rhone valley, and also in Italy down to Sicily; but is as yet only known on passage in the rest of the Mediterranean and in Spain. It is, however, said to be resident in Algeria, and it has been obtained in Tunisia, while it winters in Equatorial Africa, and wanders to the Canaries. In the Caspian district it is common in summer; and eastward it can be traced through Persia and Turkestan as far as Gilgit, while it occurs on the lakes of Sind in winter.

A nest found in the Obrez marsh in Slavonia on May 24th 1883, is described by Mr. W. Eagle Clarke as a depression in the side of a hummock of sedge about six inches above the water, amply lined with short broad pieces of reed-blade, and containing 7 eggs. The colour of these is pale olive flecked with dull brown; their shape is oval, and their dimensions somewhat exceed those of Baillon's Crake, being 1·1 by ·85 in. A newly-hatched chick, to which Mr. Clarke's attention was drawn by the loud clear note of the old bird on May 26th, was "glossy black with a beautiful dark greenish cast, and had bluish-grey legs." The note is a defiant *kik*, *kik*, *kik*. In food and general habits this species resembles its congeners, but Mr. Hume says that it is rather more insectivorous. He never flushed it from sedge or reed, but found it running over or swimming among the leaves of the lotus and water-lily, while he several times saw it diving, apparently in search of food.

The adult male has the beak green, red at the base; irides red; centre of crown and hind neck, and the upper surface generally olive-brown; back with broad black streaks, and a few small white marks, none of which are on the wings; primaries clove-brown on both webs (without any white outer margin to the first as there is in *P. bailloni*); inner secondaries dark brown in the centre, with broad olivaceous edges; tail-feathers with dark brown centres; forehead, sides of the head, front of neck, breast and belly slate-grey; thighs and vent spotted and under tail-coverts barred with white; legs and toes green. Length 8 in.; wing 4·2 in. The female is smaller, and differs in having lores and streak above the eye grey; crown, nape and sides of the neck pale brown; chin white; front of neck, breast and belly tawny buff-colour; flanks and under tail-coverts greyish, with narrow white bars. The young are still paler on the under parts, and more streaked on the flanks.



BAILLON'S CRAKE.

PORZANA BAILLÓNI (Vieillot).

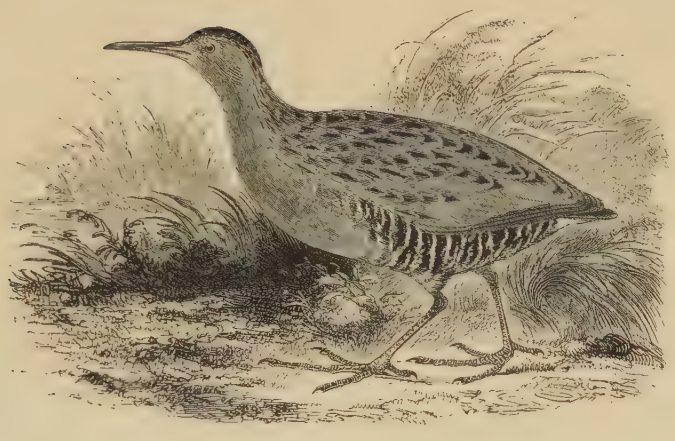
This species (named after the distinguished naturalist of Abbeville), though rather more irregular in its visits to England than the Little Crake, is also generally observed in spring and autumn; but two nests with eggs, believed to belong to Baillon's Crake, were found in Cambridgeshire in June and August 1858, while two more were taken near Hickling in Norfolk in June and July 1866. There is no evidence that the bird is a resident, though an example is said to have been captured on some ice near Cambridge in January 1823. Besides Norfolk, in which about ten specimens have been obtained, Baillon's Crake has occurred in Suffolk, Derbyshire, Nottinghamshire, Hertfordshire, Dorset, Somerset, Cornwall, Yorkshire, Lancashire, the Isle of Man, and Cumberland. In Scotland one was recorded by Jardine from Lockerbie, Dumfriesshire, in 1842; another (in the Sinclair collection at Thurso) was probably killed in Sutherland in 1841; one struck a telegraph wire in Renfrewshire in May 1893; and one is said to have been killed at Stranraer in 1891. In Ireland only two authenticated instances are known, both of them from the south.

It is not surprising that Baillon's Crake should occasionally nest with us, for it breeds annually in some parts of Holland, and

was, indeed, plentiful in Brabant until the fact became known to collectors. It nests sparingly in Normandy and is numerous in the marshy districts of the Lower Loire, as well as in the Rhone valley, and round some of the Swiss lakes; but it is very irregularly distributed in Germany and unknown in the Baltic Provinces. Taczanowski does not mention its occurrence in Poland, and Mr. W. E. Clarke did not find it in Slavonia, though it appears to be a regular visitor to Lower Hungary, the Black Sea district, and Russia up to about 56° N. lat. It nests in Portugal and Spain, as well as in Northern Italy, while on migration it is found throughout the basin of the Mediterranean, and reaches the Canaries and Madeira. In Africa it is widely diffused, breeding as far south as Natal, and it has been obtained in Madagascar. In Asia it is found as far east as the Persian Gulf, beyond which it is replaced by *P. pusilla*, distinguishable by a brown stripe through the eye and ear-coverts.

The nest, built among reeds or sedge, is similar to that of a Moor-hen, and large for the size of the bird; the eggs, 6–8 in number, are olive-brown with umber blotches and streaks, darker, as a rule, and rather smaller than in those of the Little Crake: measurements 1 in. by ·8 in. A nestling found by Mr. W. C. Tait in June is described as shiny black, with a yellowish bill and greenish slate-coloured legs. It uttered a low piping cry, which was answered by the parent bird close by with a *kek-kek-kek*. Baillon's Crake usually frequents small marshes and pools, especially where there is a fringe of tamarisk or other bushes, and appears to be less partial to meres and open waters than the Little Crake. Evening and day-break are almost the only times when it is to be seen, and if disturbed it runs like a water-rat in preference to taking wing. The food consists of insects and their larvæ, small molluscs, and a little vegetable matter.

The adult male has the bill green, base red; irides red; crown, hind neck and upper parts warm brown, with flecks of black and white; cheeks, throat and breast slate-grey; flanks and under tail-coverts conspicuously barred with black and white; *outer web of first primary white*. Length 7 in.; wing 3·45 in. The female has the chin nearly white; the under parts paler grey; the wing-coverts more profusely spotted with white, and the neck streaked with dark brown on a paler ground than in the male. The young bird (in the background) resembles her in the colour of the upper parts, and in having a fainter white line on the outer web of the first primary; the throat is white, and the under parts are barred with two shades of brown, these soon turning to grey in the males.



THE WATER-RAIL.

RÁLLUS AQUÁTICUS, Linnæus.

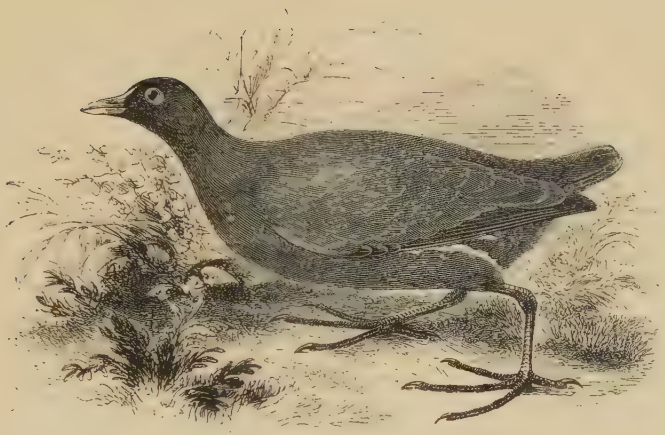
The Water-Rail may be considered a resident in most of the marshy districts of England; but there is evidence that a considerable number of the birds which have been bred in this country move southward in autumn, their place being taken by emigrants from the north. In the vicinity of the Norfolk 'Broads' it is somewhat abundant, notwithstanding a large and regrettable traffic in its eggs. In Scotland it is found, chiefly during the cold season, in suitable localities on the mainland and also on the outlying islands; it even passes the winter in the Shetlands, where Saxby noticed that, when the frost set in, it would visit enclosed places, such as corn-yards, though he never discovered any grain in the stomachs of the specimens obtained. In Ireland the Water-Rail is resident, though more frequently remarked in winter, when the herbage, which at other times conceals it, is scanty.

This species is only recorded as an autumn-visitor to the Færoes, but a few remain all the year in Iceland; and on October 15th 1882 an example was obtained as far north as the island of Jan Mayen. In Norway it has been found up to Ranenfjord (close to the Arctic circle), and near Bergen it is to some extent stationary; but in Sweden, except the south-west, it is only a summer-visitor, and it is rare in the Baltic Provinces of Russia, though observed as far north as St. Petersburg. In Northern Germany, Denmark and even

Holland, it is local; but over Belgium, France, and the rest of Europe, it is widely distributed, and in the Caucasus it is found up to a considerable elevation. Eastward it can be traced through Turkestan as far as Gilgit and the Himalayas; but the Indian region, China, Japan, and Southern Siberia are inhabited by the closely-allied *R. indicus*. In Africa our Water-Rail breeds in the marshes of Morocco and Algeria, and visits Egypt, Abyssinia, and the vicinity of Aden in winter; but in South Africa it is represented by a distinct species, *R. cærulescens*. It has not yet reached the Azores, but an example has been known to settle on a vessel in the Atlantic when 240 miles from the nearest land, and there is a record of more than double that distance.

The nest, which is well concealed in a tussock of sedge, or sometimes among coarse herbage in a willow-bed, is made of flat leaves of the reed and sedge; the eggs, 7–11 in number, are pale creamy-white, sparsely flecked with reddish-brown and ash-grey: measurements 1·4 by 1 in. Two broods are no doubt produced in the season, for Mr. A. H. Evans obtained eggs which were slightly incubated as early as April 8th, while fresh clutches are frequently found in June and July. The female, as a rule, slips off and sneaks away on the approach of intruders, and even if the clump of sedge containing her nest is surrounded and well beaten out, there is great difficulty in forcing her to take wing; a solitary person, advancing stealthily, can, however, approach sufficiently near for observation, and a dog will often capture a sitting bird. During the breeding-season Water-Rails are very noisy, uttering a loud *cro-o-o-an*, called "sharming" in Norfolk. The food consists of aquatic plants, worms, slugs and snails.

The adult male has the bill red; irides hazel; feathers of the crown, hind neck and upper surface olive-brown, with black streaks down the centres; quills dusky-brown; cheeks, neck, and breast lead-grey; flanks nearly black, barred with white; vent pale buff; legs and feet brownish flesh-colour. Length 11·5; wing 4·75. The female is duller in colour, and frequently exhibits some distinct white bars on the wing-coverts. The young bird has the under parts of a dull buffish-white, speckled on the throat and barred on the flanks with dark brown; while the upper parts have a more olive tint than in the adult. The nestling is covered with black down.



THE MOOR-HEN.

GALLÍNULA CHLÓROPUS (Linnæus).

This familiar species, also known as the Water-hen, is generally distributed throughout the British Islands, and is, as a rule, stationary; though a partial migration takes place in winter from the northern districts where the cold weather is severe and continuous. Elsewhere the Moor-hen manages to exist very well during frosts, resorting to running streams when ponds are frozen over, and finding shelter in plantations, hedge-rows and thick bushes. Its trivial name had its origin at the time when 'moor' was equivalent to mire or 'marsh.'

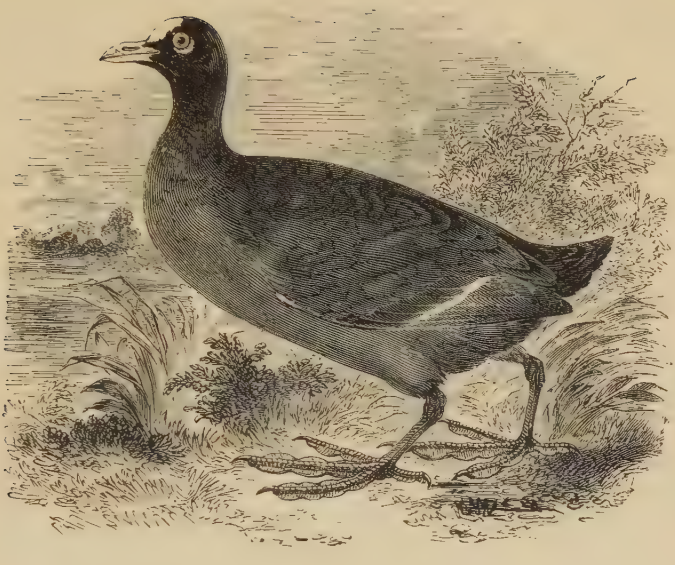
As a wanderer the Moor-hen has occurred in the Færoes and the south of Iceland; but in Scandinavia it only breeds sparingly up to lat. 63°, while in Russia it seldom nests as far north as St. Petersburg. Throughout the rest of Europe it is more or less common in suitable localities, and is resident in the Canaries, Madeira and the Azores, as well as in Africa north of the Sahara; its numbers in the last being reinforced by migrants from the north in winter. Southward it can be traced along both sides of that continent to Cape Colony, but birds found in Madagascar, Réunion and the Seychelles are somewhat different, while a remarkable island-species, *G. nesiotis*, is found in the Tristan da Cunha group. From Ceylon and the Philippines northward our Moor-hen is resident in Asia up to the main island of Japan, and it breeds as far north as Lake Baikal in Siberia. A closely-

allied representative, *G. galeata*, is found in America, and *G. sandvicencis* inhabits the Hawaiian Islands; while *G. tenebrosa*, which has no white stripes on the flanks, is the Australian species.

The nest is generally built in wet places, among reeds, sedge and other aquatic plants or on the roots of alders; but it is often placed on branches of trees and thorn-bushes over water, even twenty feet or more from the ground. The materials employed are dry reed-flags (*Typha*), sedge &c., matted together, and the birds have been known to raise the structure when an inundation was threatened. The eggs, 7–9 in number, are buffish-white speckled with reddish-brown: measurements 1·65 by 1·2 in. Incubation, which lasts three weeks, sometimes begins in March, and two if not three broods are produced in the season; the young from the first nest assisting their parents in building another, and even in taking care of the second brood. The Moor-hen usually feeds on slugs, worms, grass, grain when procurable, insects and their larvæ; but it will also devour the young of other water-fowl, and is very pugnacious towards the latter, as well as to members of its own species. The call-note is a loud *crek-rek-rek*, several times repeated, especially towards evening.

The adult has the fore part of the bill yellow, base and frontal plate red; irides reddish-hazel; upper parts chiefly dark olive-brown; head, neck and under parts dark iron-grey, with some white streaks on the flanks; belly and vent greyish; median tail-coverts black, in strong contrast with the conspicuously white lower coverts; legs greenish-yellow, with a red garter above the tarsal joint. Length 13 in.; wing 6·75. Young birds have the beak, frontal plate, and legs dull green; throat white; under parts ash-grey; upper surface greyish-olive.

The Purple Gallinule (*Porphyrio cæruleus*), the Green-backed Gallinule (*P. smaragdonotus*), the Indian *P. poliocephalus* and the Australian *P. melanotus* are frequently kept in semi-captivity, and individuals which have escaped or, which have been deliberately turned out, have from time to time been captured in our Islands. The bird from the south-west of Ireland recorded by Thompson as a "Martinique Gallinule" has proved to be *P. smaragdonotus*, but there is said to be a genuine example of the American species in Mr. Hart's Museum at Christchurch.



THE COOT.

FÚLICA ÁTRA, Linnæus.

The Coot is found upon most of the large ponds, lakes and sluggish rivers throughout the British Islands. In East Anglia, owing to successive drainage of its breeding-haunts, it is less plentiful than it formerly was, but it is still abundant on the Broads; also on Slapton Ley in Devon, where large numbers are killed at the annual battues; on Southampton Water; and in Poole Harbour and other parts of Dorsetshire; while on the Nene, in Northamptonshire, it appears to have increased. As a rule it is resident, remaining throughout the winter even in the Hebrides and Orkneys; though chiefly a summer-visitor to the Shetlands. When the inland waters are closed by frost it migrates to tidal estuaries and the sea-coast.

This species is a tolerably regular visitor to the Færoes, and wanders to the south-west of Iceland, while a solitary example has even reached Greenland. On the coast of Norway, under the influence of the Gulf Stream, the Coot has been found up to lat. 70° N.; while it nests in the southern districts of that country and of Sweden, as well as along the shores of the Baltic, as far as

St. Petersburg. Southward it is generally distributed over Europe down to the Mediterranean, where, owing to the arrival of migrants from the north, its numbers in winter are sometimes enormous. In the south of the Spanish Peninsula its breeding-range touches that of the Crested Coot, *F. cristata*, a species which has two bright red caruncles on the frontal plate. This is the resident representative throughout Africa; in winter, however, our bird visits the Azores, Madeira, and the Canaries, swarms upon the waters of North Africa and Egypt, and reaches the Blue Nile. Eastward it can be traced across temperate Asia to China and Japan, and it nests, sparingly, as far south as Kashmir and the plains of Northern India; while in the cold season multitudes are found on the lakes of Sind, as well as in Burma. The range of this species extends to Java; while its representative in North America differs chiefly in having a large amount of white on the under tail-coverts.

The nests are strong and compact structures of dry flags, and are usually raised from six to twelve inches above the water on foundations of reeds or tufts of rushes, some of them being so firm as to support the weight of a man seated when up to the knees in water; they are, I believe, often utilized in Spain by the Marsh-Harrier. The eggs, 7–10 in number, are stone-colour, minutely speckled with dark brown: measurements 2 by 1·5 in. The young, which are often hatched early in April, leave the nest after three or four days and follow their parents. In winter, when Coots are in large flocks, they protect themselves against birds of prey by throwing up water with their feet; while they are at all times remarkably wary, for which reason their company is much sought by water-fowl, as they give the alarm by day, when many of the latter are asleep. Hawker says, "If a gentleman wishes to have plenty of wild-fowl on his pond, let him preserve the Coots, and keep no tame Swans." The flight of the Coot is powerful when fairly on the wing, the legs being stretched out behind like those of a Heron; while a wounded bird will scratch like a cat. The food consists of aquatic insects, worms, slugs, weeds and other vegetable substances.

The adult has the beak of a pale flesh-colour; the naked patch on the forehead pure white—whence the name Bald 'Coot'; irides crimson; plumage sooty-black below and dark slate-grey above, with a narrow white bar across the wing; legs, toes and webs dark green. Length 15 in.; wing 8·5 in. In the young bird the frontal patch is smaller, the throat is nearly white, and the under parts are grey.

THE CRANE.

GRUS COMMÚNIS, Bechstein.

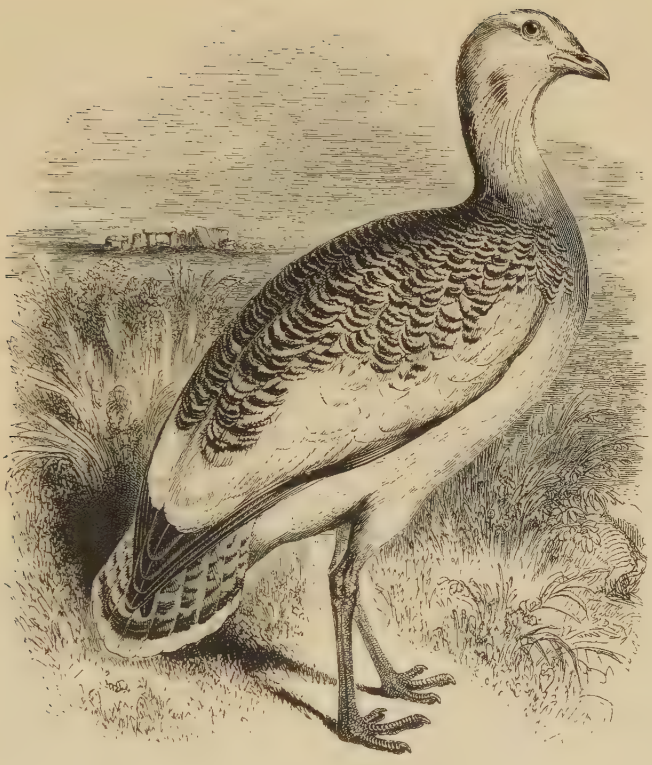
There is evidence that until the year 1590 the Crane used to breed in the fens and swamps of East Anglia, and its visits in winter continued with regularity to a later period, though they gradually diminished in frequency. In the present century it can only be considered as of irregular occurrence in England, while it is very rare on the mainland of Scotland, and only an occasional visitor to the Orkneys and Shetlands. In Ireland a few have been obtained, the latest in September 1896. When estimating the value of early records respecting its supposed abundance, it must be remembered that the Heron was—and still is—frequently known as the 'Crane.'

On the spring-passage this species sometimes visits the Færoes, and it wanders to the north-east of Norway, while it breeds in the morasses in the south of that country, as well as in Sweden, Lapland, Finland, Russia (down to the Black Sea), Poland (especially on the Vistula), Northern Germany, Austro-Hungary, the Danubian Provinces, Turkey, Italy (Venetia), and Spain (Andalucia). Its loud trumpet-like note may be heard over the greater part of Europe from the beginning of March onward, announcing its return from the south and Africa, in which its winter range extends to Abyssinia. In December 1892, the Khálifa handed to his captive, Slatin Pasha, a capsule taken from the neck of a Crane killed in the Sudan, containing a statement that this bird had been bred and liberated on a specified estate in South Russia. Eastward the Crane can be traced across Asia up to lat. 65° N. in summer, and to Japan, China, Northern India &c. during the cold season; Prjevalski, when at an elevation of 16,000 feet, observed flock after flock crossing the lofty ranges of Central Asia on migration, at such an enormous altitude above him that the birds themselves were scarcely visible!

The nest is placed on slightly raised ground in a marsh, and the eggs, usually 2, though occasionally 3 in number, are of an olive-grey colour, blotched with reddish-brown: measurements 3·8 by 2·6 in. They are laid towards the end of April in Spain, but in Lapland Wolley did not find them till a month later. The food consists of grass, grain, pulse, acorns, the tubers of the sweet potato, water-melons &c., with beetles and other insects in winter; while I have seen a Crane in captivity capture and swallow a Sparrow.

The adult has a red warty patch on the crown; general plumage slate-grey; inner secondaries long, drooping, and bluish-black in colour. Length 45 in.; wing 21 in. The male is larger and rather darker than the female. The young have no red on the head; the upper plumage is greyish-brown, and the hind plumes are short. Breeding does not take place till the third year.

A male example of the Demoiselle Crane, *Grus virgo*, is said to have been shot at Deerness, East Mainland, Orkney, on May 14th 1863, a companion bird being pursued, but not obtained (Zool. p. 8692). This inhabitant of Africa, Asia, and the south of Europe, has wandered as far north as Sweden and Heligoland; it is also frequently kept in confinement. An African Crowned Crane, *Balearica pavonina*, was mobbed to death by the populace on the Sabbath-day, September 17th 1871, near Dalry in Ayrshire.



THE GREAT BUSTARD.

Otis tárda, Linnæus.

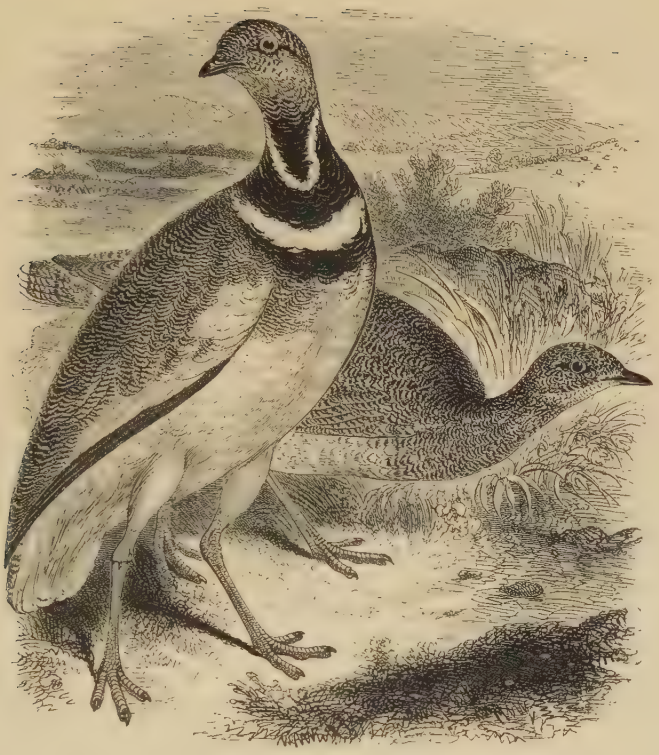
Until the year 1526 the Great Bustard used to breed, sparingly, on the flat portions of Berwickshire and East Lothian, on the Scottish side of the Border; while in England it was abundant on the moors, extensive downs and plains as far south as the Channel. The enclosure of wastes, the planting of trees, and the increase of population contributed to the gradual diminution of its numbers; and this fine species gradually passed away from Berkshire, Hertfordshire, Cambridgeshire, the wolds of Lincolnshire, and the downs of Sussex, while the first decade of this century saw the extinction of the birds indigenous to Salisbury Plain. On the Eastern Wolds of Yorkshire a survivor of former droves was trapped in 1832–33; and in Norfolk and Suffolk the last fertile eggs were taken about 1838, though a few birds lingered to a somewhat later date. The

Bustard is now only an irregular wanderer to Great Britain—exceptionally as far north as the Orkneys; the winter of 1870–71 being signalized by the arrival of a considerable number, while a smaller migration was noticed in England in the winter of 1879–80 (coinciding with a visitation in the northern and central provinces of France), and another incursion in 1890–91.

In Denmark, and in the south of Sweden—where this species formerly bred, it is now of only accidental occurrence, and in Russia it is seldom found further north than Moscow, though southward it is plentiful. It is still resident, except in severe winters, on the plains of Germany—especially near Leipzig, and in Poland it is widely distributed; on the steppes of the Danubian and Black Sea districts it becomes abundant, and it is also common in suitable portions of the Spanish Peninsula; but to the rest of Europe it is chiefly a visitor. In Morocco, Tunisia, and North Africa generally, it is rare. North of the great mountain ranges in Asia, it can be traced to Western China, and a flock has been known to wander as far as the valley of the Indus; but in Eastern Siberia, and the greater part of China in winter, its representative is the closely-allied *O. dybowskii*.

In spring the males fight furiously for the possession of the females, but afterwards they live apart in small droves, and towards the end of May they moult their quills, remaining for some time unable to fly; otherwise the Bustard is very strong on the wing, and the idea that it habitually seeks safety by continued running is a popular error. The eggs, laid in a hollow scraped in the ground, are 2–3 in number, and are olive-green blotched with brown: measurements 3 by 2·1 in. Incubation, which lasts rather more than three weeks, begins in April in Spain, though later in Germany; the young are soon able to run and hide themselves. Green corn, peas, clover &c., are the chief articles of diet, but worms, small mammals and reptiles are also eaten. Old males sometimes weigh upwards of 30 lbs., and their flesh is coarse, but the hens and young are excellent for the table.

The adult male has a tuft of long bristly white feathers at the base of the bill on each side; head bluish-grey; upper surface chiefly ochreous-yellow barred with black; wings white, except the primaries, which are brownish; breast banded with rich chestnut and grey; belly white. Length 43 in.; wing 24 in. The female has no bristles or pectoral band, and is much smaller; wing 19 in. The young resemble the hen. In the adult males of this and some other Bustards there is a large sub-lingual air-pouch, which is capable of great dilation during the love-season, though at other times almost invisible.



THE LITTLE BUSTARD.

Otis tétrax, Linnæus.

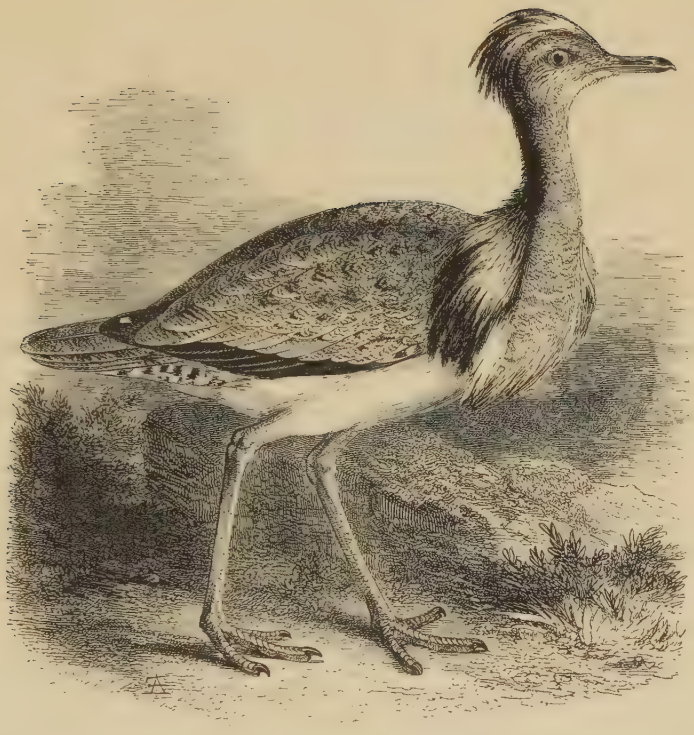
Unlike the preceding species, the Little Bustard was never more than a wanderer to the British Islands, and, since its presence was first noticed in 1751, most of the tolerably numerous occurrences on record have been during the colder half of the year. The majority of these have been in the southern counties (notably Cornwall), or in the eastern half of England (especially in Suffolk, Norfolk, and Yorkshire); while as regards Scotland the four known instances have all been on the east side. In Ireland, six examples have been obtained; four of them in the south.

Exceptionally the Little Bustard has been obtained in the south of Norway and Sweden, as well as on the German side of the Baltic, and in the St. Petersburg district: while in May 1883 its nest was found near Fehrbellin (north of Berlin). It is, however,

chiefly a winter-visitor to Germany; but it has greatly increased of late years on the undulating plains which stretch across France from Marne to La Vendée, arriving about the end of March or early in April, and leaving in September. In the Spanish Peninsula it is very common on broken or rolling ground; but to the north of Italy it is only a visitor, though resident in the south as well as Sicily and Sardinia; while it is tolerably plentiful along the valley of the Danube, as well as in the Balkan Peninsula, Turkey, Greece, and Southern Russia. Eastward it extends to Turkestan, and on migration it is known to cross the lofty Pamir plateau on the way to its winter-quarters in North-western India. In Africa north of the Sahara it is abundant, being well known in Algeria and Tunisia by the name of "Poule de Carthage"; it is, however, rare in Egypt.

The male assumes his breeding-plumage in April, at which time he selects a spot about three feet in diameter, on which he passes several hours each day, with head and neck thrown back, wings somewhat extended, and tail erect, pouring forth his peculiar cry of *prut*, *prut* (whence the French name Canepetière), jumping up at the conclusion of each call, and striking the ground in a peculiar manner on his descent. At this season Mr. Abel Chapman found that the throat became much dilated. Conflicts take place for the females, but instead of uniting in flocks whilst the latter are incubating, each male is to be found in the vicinity of a hen. The nest, slightly made of dry grass, is placed on the ground, among herbage sufficiently high to conceal the bird; the eggs, 3–4 in number, are of a very glossy olive-brown or pale green, clouded with darker patches, and often beautifully zoned with rufous: measurements 1·95 by 1·5 in. The first clutch is laid about the end of May, a second being frequently produced in the latter part of July. The food consists of herbs, grain, insects, slugs, small snails, frogs, field-mice &c. The male rises with a loud clatter of his wings, but the female sits remarkably close. In autumn the birds form large packs, which afterwards break up into smaller parties.

The male in spring has the cheeks and throat dark grey enclosed by a white loop, below which is a broad collar of black, followed by a band of white and then another of black; crown and general upper plumage sandy-brown, vermiculated with black; wing-coverts and under surface white. Length 17 in.; wing 9·5 in. In winter the feathers of the neck and breast are sandy-brown streaked with black, as in the female. The latter differs chiefly in having the upper parts blotched—rather than vermiculated—with black. The young are like the hen, but rather more barred on the flanks.



MACQUEEN'S BUSTARD.

Otis macqueeni, J. E. Gray.

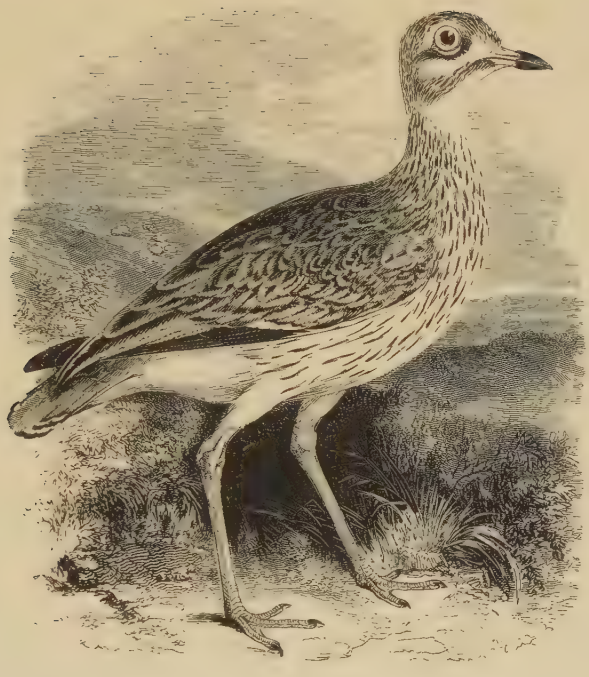
This species, which might with advantage be called the Asiatic Ruffed Bustard, occasionally wanders across Europe to England. In October 1847 a bird—now in the Museum of the Philosophical Society at York—was shot in a stubble-field near Kirton-in-Lindsey, Lincolnshire; on October 5th 1892, an adult male, now in the Newcastle Museum, was obtained near Redcar; and on October 17th 1896, a third was secured, near the Spurn, Holderness.

It is tolerably certain that the five Ruffed Bustards recorded from Northern Germany between the years 1800 and 1847 were all examples of *O. macqueeni*, and not of its closely-allied African representative, *O. undulata*: the existence of two distinct species being unknown to Naumann and others. A genuine Macqueen's Bustard, killed near Utrecht in December 1850, is in the Museum at Leiden, while three specimens have been obtained in Belgium, one on the

Swedish island of Oeland, one (out of a flock of six) in Schleswig, one in Poland, one in Silesia, one near Helsingfors in Finland, and one in Livonia towards the end of September 1880. In Italy two females were obtained near Rome in November and December 1859; but the species occasionally met with in Malta, Sicily, and Southern Spain is the African Ruffed Bustard. In the Aralo-Caspian region Macqueen's Bustard is resident, and eastward it can be traced to the steppes near Lake Balkash and to the Altai Mountains. On migration it crosses the Pamir to pass the cold season in Northern India, where it appears in September and leaves again in March; while in the semi-desert districts of Sirsa and Kurrachi, in Sind, it is sometimes so abundant that fifty have fallen to a single gun in a day. It is also found in Afghanistan, Baluchistan, and in Persia it breeds along the Gulf of Oman. Both the above species are generally known by the name "Houbara."

Of late years a tolerable number of eggs have been received by Herr Tancré from the vicinity of the Altai range (lat. 50° N.), in the extreme south of the Russian province of Tomsk. All that I have seen are olive-brown with darker blotches, and with less of a greenish tinge than is found in some of those of the Great Bustard: average measurements of 3 (a clutch) in the collection of Mr. E. Bidwell 2·55 by 1·7 in. Probably this species is not polygamous, for Mr. Hume never observed any preponderance of females over males. It frequents sandy wastes studded with low bushes, among which it runs with great rapidity, feeding largely on the small fruits of the *Ber*, the berries of the *Grevia*, and young shoots of lemon-grass, with a few grasshoppers or beetles. The specimen killed in Lincolnshire had its crop filled with caterpillars of the yellow-underwing moth, small-shelled snails &c.

The adult male has a crest of white feathers tipped with black, and a ruff, which is chiefly black, on the sides of the neck; upper parts pale buff, finely vermiculated with black; tail washed with rufous, crossed with three black bars, and tipped with white; throat pale grey; breast bluish-grey; abdomen white. Length 28 in.; wing 15·5 in. The female is a little lighter in colour, and has the crest and ruff less developed. In the African Ruffed Bustard, *O. undulata*, the ground-colour is more rufous, the vermiculations are coarser, the tail is broadly crossed with five dark bars, and the elongated feathers of the crest and lower throat are white. The latter species occurs on Lanzarote, the nearest of the Canary Islands to Africa.



THE STONE-CURLEW.

Œdicnémus scólopax (S. G. Gmelin).

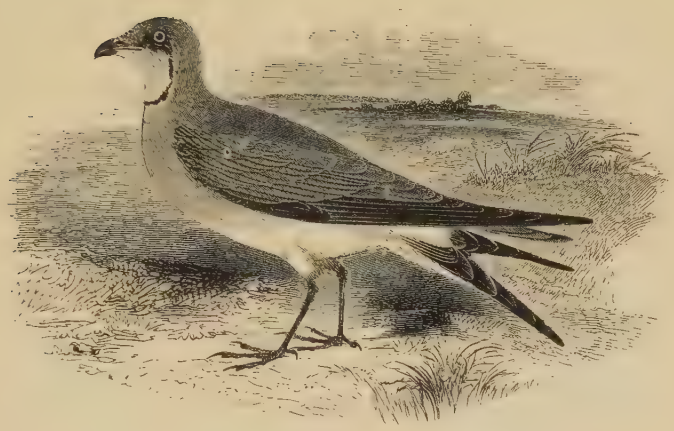
The Stone-Curlew is often called the Thick-knee, owing to the swelling observable at the knee-joints in young birds and which disappears with increasing age; while another name for it is Norfolk Plover, with reference to its comparative abundance on the extensive 'brecks' and warrens of East Anglia. It comes to this country, as a rule, in April, and, after assembling in flocks in the early autumn, leaves in October; but a few have been known to remain until December, and on January 30th 1895 (one of the most severe seasons on record) a bird was killed in Lincolnshire; while in Cornwall and South Devon a tolerable number pass the winter. The Stone-Curlew is especially partial to chalk downs, open heaths, and dry sandy soils, such as are found in Dorset, Wilts, Hants, Sussex, Kent (where it lays its eggs on the shingle in Romney Marsh as well as on the neighbouring uplands), Berkshire, the counties along the north side of the Thames, Bedfordshire, Hertfordshire, Cambridgeshire, Suffolk and Norfolk. It is also known to have

nested in the Midlands and Worcestershire, as well as on the wolds of Lincolnshire and East Yorkshire; but in Northumberland it is of very rare occurrence, and there are no records for Cumberland or Lancashire; while in Wales and west of Herefordshire it is almost unknown. In Scotland one was obtained near St. Andrews in January 1858, and one in Dumbartonshire in August 1897. In Ireland only six or eight examples have been met with.

Though only a straggler to Denmark, the Stone-Curlew breeds sparingly in the northern districts of Germany, and is found in summer throughout the temperate portions of Europe where the localities are suitable; while south of the Alps and the Carpathians it is to a great extent resident, as it is in the Canaries and Madeira. It inhabits North Africa, Egypt, and the coast of the Red Sea; but in Somali-land its representative is *Œ. affinis*, closely related to the widely-distributed South African *Œ. capensis*. In Asia our bird has been noticed as far north as the wastes near the Saisan Lake (below the Altai range); and southward it is found in Afghanistan, India (including Ceylon) and Burma. Other members of the genus are found in various parts of the African, Indian and Australian regions, as well as in the tropical portions of America.

The eggs, usually 2 in number, are pale clay-brown, spotted and streaked with ash-grey and umber: measurements 2·1 by 1·5 in. They are laid in a mere hollow scraped in the heath-land, or on the sand, and often among scattered stones, which they much resemble; specimens from arid localities in the south of Europe, Africa, and India being as a rule pale in colour and small in size. Eggs are often found by the middle of April, and sometimes in September. The male incubates during the day. Worms, slugs, and insects —especially nocturnal beetles—are the principal diet, though the Stone-Curlew also eats such small mammals as field-mice, as well as frogs and reptiles. Its whistling cry is chiefly heard after dusk, and on moonlight nights the birds are very noisy, but during the day they are usually silent.

The adult bird has the beak black at the point, greenish-yellow at the base; irides very large and golden-yellow; feathers of the upper parts pale brown, with dark streaks down the centres; wing-coverts with dull white tips which form two narrow bars, quills nearly black; throat and a streak below the eye white; neck and breast buff, streaked with dark brown; belly paler; vent and under tail-coverts almost white; legs and feet yellow. Length 16 in.; wing 9·25 in. The sexes are alike in plumage; the young are rather duller in colour than the adults, and have more bars on the tail-feathers.



THE PRATINCOLE.

GLÁREOLA PRATÍNCOLA (Linnæus).

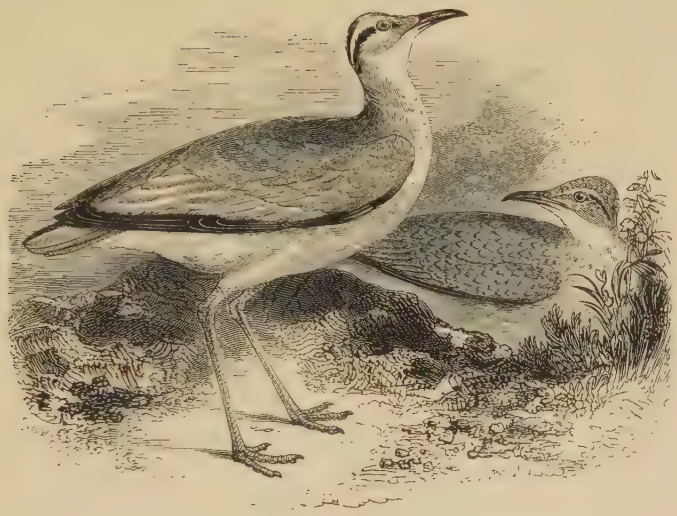
Even to the south of Europe the Pratincole is only a summer-visitor, though it occasionally wanders to Great Britain on both spring and autumn migrations. Its occurrence was first noticed in 1807, when examples were obtained almost simultaneously at Ormskirk in Lancashire and Bowness in Cumberland, while subsequently four specimens have been taken in Norfolk, one in Cambridgeshire, one in Essex, one in Lincolnshire, three in Yorkshire, and one, strange to say, in Unst, the most northern of the Shetland Islands. In the south of England, Surrey, Hants, Dorset, Wilts, Somerset, Devon and Cornwall have been visited ; and a bird was observed near Hay in Breconshire by Messrs. Baskerville, who were well acquainted with the species. In Ireland, it is said that one, which was not preserved, was shot nearly fifty years ago in co. Cork ; and the identification was probably correct, for all the evidence that I have been able to collect indicates that this species reaches our shores by traversing the western half of France.

Early in April the Pratincole returns from its winter-quarters in the south to North Africa, where large numbers remain to breed ; while others pass through Egypt and nest in Palestine, Asia Minor, the Dobrudscha, the neighbourhood of Missolonghi in Greece, Sicily, the Balearic Islands, and the plains at the mouth of the Guadalquivír in Spain. In other parts of the Mediterranean basin

the bird is chiefly a migrant, though individuals may remain on the west coast of Italy, where the "Pernice di mare" is well known on passage. It continues its course to the Camargue in the south of France, where it finds suitable breeding-ground, except in dry seasons; while a few ascend the valley of the Rhone to Savoy and Lake Léman, and spread out over France as far west as the mouth of the Somme. In Holland an example was obtained on July 24th 1892, but the mountains of Central Europe form a barrier which the Pratincole rarely crosses; and, though found in Austro-Hungary, it is very rare in Poland. In Southern Russia and on the eastern side of the Black Sea the representative form is *G. melanoptera*, which has black—instead of chestnut—under wing-coverts and axillaries, with no white alar bar. Both of these forms (as well as one that is intermediate) are found in Asia (especially on salt-plains) as far east as the Tian-Shan range; and both occur in South Africa down to Natal in the cold season. There are several other members of the family in the Ethiopian, Indian and East Australian regions, but none are known in the New World.

Early in May the eggs, 2–3 in number, are laid, with their axes parallel, on the sun-dried mud which has been covered with water during the rains of winter; the shell is thin, the form very oval, the ground-colour buff or grey, marbled and zoned with black or purplish-brown spots: measurements 1·15 by ·9 in. The note, when the breeding-place is invaded, is a shrill *kia*, *kia*, *kia-ia*; the birds swooping close to the intruder's head, and also cowering over the soil sideways or with extended wings, though this proceeding does not necessarily indicate the proximity of their eggs or young. The flight is very Tern-like, but when on the ground the bird runs with great rapidity. The food—often taken on the wing—consists of insects, especially beetles, grasshoppers and locusts.

The adult has the upper parts clove-brown; tips of secondaries, tail-coverts, and bases of the tail-feathers white; throat buff, enclosed by a narrow black bridle; breast brownish-buff; belly white; axillaries ruddy-chestnut. Length 10·5; wing 7·5 in. The sexes are alike in plumage. In the young bird the upper parts are much mottled and barred with black and grey, and the breast is profusely striped with dark brown. The nestlings are clove-brown with slight mottlings on the upper parts, and white below; they can run, like Plovers, on emerging from the shell.



THE CREAM-COLOURED COURSER.

Cursórius gállicus (J. F. Gmelin).

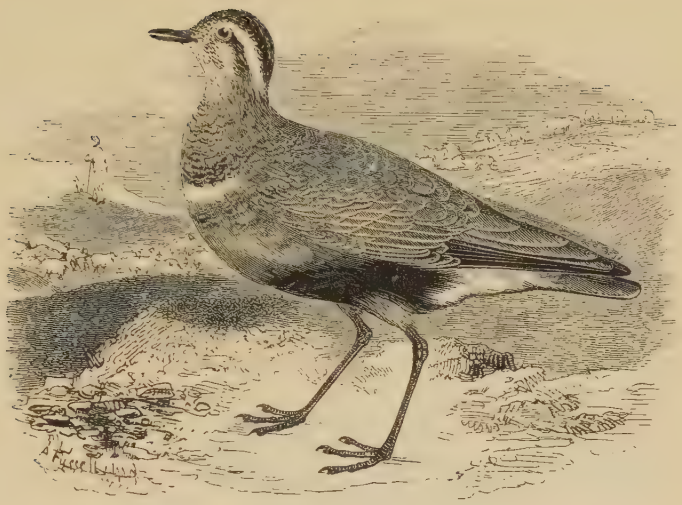
The Cream-coloured Courser is only an irregular wanderer to the countries north of the Mediterranean, and its specific name is owing to the accident that the bird was first described from an example killed in France. Although, however, an inhabitant of southern and even desert localities, yet—such are the eccentricities of migration—its visits to Great Britain have been, with one doubtful exception, between the early part of October (in which month seven individuals are known to have been killed) and December. Kent, Middlesex, Suffolk, Norfolk, Lincolnshire, Yorkshire, Northumberland, Cumberland, Leicestershire, 'North Wales' in 1793 and Cardiganshire in October 1886, Cornwall, Devon, Somerset, Dorset, Wilts and Hants, may be enumerated among the districts in which it has been identified; and altogether about a score of specimens have been obtained, inclusive of one shot on October 8th 1868 in Lanarkshire—the only instance in Scotland. The species has not yet been noticed in Ireland.

As a straggler this Courser has occurred once near Liège in Belgium, once in Holland, once (in 1835 or 1836) in Heligoland, three or four times in Northern and Central Germany, and to about

the same extent in France. Even to the south of the last, as well as to Spain and the mainland of Italy, its visits are rare and irregular, though somewhat more frequent in Sicily and Malta. In Bulgaria and the Dobrudscha this species is unknown, and it is only a wanderer to the steppes of South Russia. In the west its true home commences at the Canary Islands, on some of which the bird is numerous; while eastward it inhabits Africa north of the Sahara—where Canon Tristram obtained the first eggs on record (Ibis, 1859, p. 79, pl. ii., fig. 3); and southward it is found in Kordofan, as well as on both sides of the Red Sea. Through Arabia it can be traced to Persia, Baluchistan, Afghanistan and Northern India, but Dr. W. T. Blanford is doubtful respecting its asserted nesting in India proper. Other members of the genus inhabit portions of Asia and Africa; the one most closely allied to the present species being a native of Somali-land.

On Fuerteventura, Canaries, Mr. Meade-Waldo obtained young birds by March 23rd, on the barest parts of the desert, where the stones were mostly small; and such was the abundance of the species on that island in 1891 that about a thousand eggs were taken for collectors, while at least double that number were destroyed. Most of the earlier eggs in European collections were, however, the produce of a bird which was brought to Favier of Tangiers in 1851 and laid them at irregular intervals until 1859. Their colour is stone-buff, marbled or freckled with brown and purplish-grey: measurements 1·35 by 1·1 in. The clutch consists of 2 eggs, and incubation seems to devolve upon the females; the cocks either going about in little parties, or mixing with birds that are not breeding. The food consists of insects and small molluscs. The note emitted by the female is syllabled by Favier as *rererer*.

The adult has the beak dark brown; irides hazel; forehead and crown of a sandy-buff, turning to grey and deepening to slate-blue margined with black on the nape; from the eye to the nape a white streak, with a narrow black stripe below; upper surface generally sandy-buff; quills, under wing-coverts and axillaries black; under parts pale greyish-buff, gradually passing into white at the vent; legs greyish. The sexes are alike in plumage. Length 10 in.; wing 6·3 in. The young bird (in the background) is more rufous in tint, and has no grey or black on the nape, while the eye-stripe is buff instead of white; the feathers of the throat and the upper parts have dark crescentic markings.



THE DOTTEREL.

EUDRÓMIAS MORINÉLLUS (Linnæus).

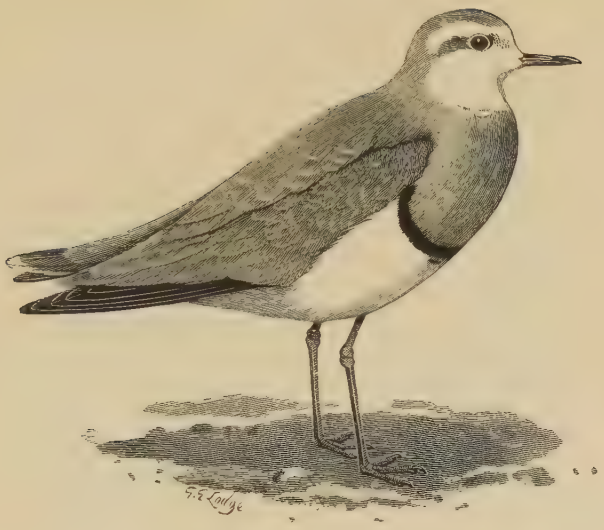
The Dotterel usually makes its appearance in the southern and eastern counties of England towards the end of April or early in May, according to the season; leaving for the south in August or the beginning of September. It is somewhat partial to the chalk-formation, and considerable numbers used to sojourn for a few days on the arable land of the low hills on the borders of Hertfordshire and Cambridgeshire, as well as on the Chilterns and similar localities, on their way northward. For at least a century it has been known to breed on the mountains of the Lake district, but there is no evidence that at any time during that period it was plentiful, though its numbers have undoubtedly decreased of late years. For details reference should be made to the Rev. H. A. Macpherson's 'Fauna of Lakeland,' pp. 348–358. On migration the Dotterel often lingers on the moors and marshes near the sea-coast on both sides of our island, and is of tolerably wide distribution, except in Wales, where it is of irregular occurrence. None remain during summer on the Cheviots, along which the "trips" pass on their way northward in spring, but according to Mr. Service a few pairs have nested on the Galloway and Dumfriesshire hills; while further north the bird breeds in moderate numbers on the Grampian and Cairngorm ranges at an altitude of 2,700 to 3,000 ft., and occupies a few locali-

ties to the north of the valley of the Spey (Harvie-Brown and Buckley). It is said to have visited the Orkneys and Shetlands, but has not yet been recorded from the Outer Hebrides, and is of rare occurrence on the west side of Scotland. In Ireland it has been obtained as far north as Donegal, but is decidedly uncommon at any season.

The Pearson Expedition of 1895 found this species nesting on the South Island of Novaya Zemlya, as well as on Waigats in 1897; and it breeds in considerable numbers on the fells of Scandinavia. Its eggs and young have been taken on the highlands of Transylvania, Styria and Bohemia, but as a rule the bird is chiefly a migrant over the Central part of the Continent and throughout the Mediterranean basin, in which Northern Africa, Egypt and Palestine appear to be its winter quarters; its wanderings extending to the Canaries. From Russia eastward it nests on the tundras and some of the mountains of Siberia as far as the Sea of Okhotsk, and southward to the Ala-tau range; visiting Turkestan and Persia in winter.

Mr. Frank Nicholson, who has been in the habit of exploring the Lake district for more than thirty years, says that the eggs never exceed 3 in number; they are usually laid in a depression of the short dense moss, a little below the summits of the mountains, and their colour is a rather oily yellowish-olive, blotched and spotted with brownish-black: measurements 1·6 by 1·1 in. Incubation seldom begins before the first or second week in June. The food consists of wireworms, beetles and other insects. The trivial as well as the scientific name of this bird refers to its supposed stupidity and the ease with which it allows itself to be approached by a fowler with a net, while watching and even imitating his movements.

The adult has the crown nearly black, bordered by a broad white loop which runs backwards from each eye and round the nape; feathers of the upper parts ash-brown, with paler edges and rufous margins to the inner secondaries; tail-feathers—except the central pair—broadly tipped with white; chin and throat dull white; breast-feathers ash-brown, tipped with black at their junction with a white gorget, followed by warm chestnut on the lower breast and flanks; belly black; tail-coverts white; axillaries greyish. Females are sometimes a trifle larger, but seldom brighter, than males. Length 9 in.; wing 6 in. The young bird has the feathers of the crown and upper parts margined with rufous-buff, especially the long inner secondaries; breast mottled with greyish-brown, and with little indication of the white gorget; remaining under parts dull white.



THE CASPIAN PLOVER.

ÆGIALÍTIS ASIÁTICA (Pallas).

On the morning of May 22nd 1890, two strange birds were observed in a large market-garden bordering on the North Denes at Great Yarmouth, and later in the day one of them was shot. It proved to be an adult male of the Caspian Plover, and, having been exhibited by Mr. Southwell at a meeting of the Zoological Society (Pr. Z. S. 1890, p. 461), it was placed in the Norwich Museum.

In an important paper on Limicolæ, published in 'The Ibis' for 1870, Mr. Harting had described and figured this species; pointing out (p. 207) the possibility that it might visit England, inasmuch as its occurrences at Heligoland in November 1850 and May 1859 had brought its westward wanderings within a measurable distance of our shores. In November 1887 a straggler was obtained in Italy, on the banks of the classical Metaurus, and is now in the Museum at Florence. That as long ago as April 1836 an example should have been taken at Odessa, as well as a pair at Astrakhan in 1871, is not surprising, for the home of this Sand-Plover begins at the Khirgis stèppes. According to Prof. Menzbier (Poynting's 'Eggs of Limicolæ,' p. 23), the breeding-area extends from the mouth of the Volga over the lower courses of the rivers Ural and Emba, and

stretches along the eastern shores of the Caspian, continuing to the Sea of Aral, the salt-lakes of Turkestan, and southward to the Amu-Daria. On migration the bird passes by Lenkoran southward to the Persian Gulf and Arabia, while, following the east coast of Africa and the Nile valley, it reaches Cape Colony; it also occurs in Damaraland and Angola. A specimen has been obtained near Ratnagiri in India.

Prof. Menzbier says that this Plover arrives on the north shore of the Caspian (especially round Guriev) in the beginning of April, and colonies of about ten pairs take up their residence round a salt lake. The nest is a shallow depression, with hardly any lining, and the eggs, 3 in number, have an ochraceous ground-colour, thickly sprinkled with irregular blackish-brown spots: measurements 1·45 by 1·02 in. Departure takes place by the middle of August. The food consists mainly of Coleoptera and Cicadæ.

The adult in spring has the forehead and cheeks white; no rufous colour on the hind-neck, but a broad band of bright chestnut across the upper breast, followed by a narrow black band on the lower edge; the rest of under parts white; upper surface brown; primaries dark brown with white shafts; axillaries white; bill black; legs greenish-olive; iris dusky hazel. Length 7·5 in.; wing 5·6 in.; tarsus 1·35. In winter the pectoral band is merely brown, and the head and upper parts are umber-colour, with a tinge of sandy buff on the forehead, cheeks and hind-neck. The young have more of a sandy tinge and the feathers of the upper parts have buff edges; the length of the tarsi serves to distinguish them from the young of the Ringed Plover.

THE RINGED PLOVER.

ÆGIALÍTIS HIATÍCOLA (Linnæus).

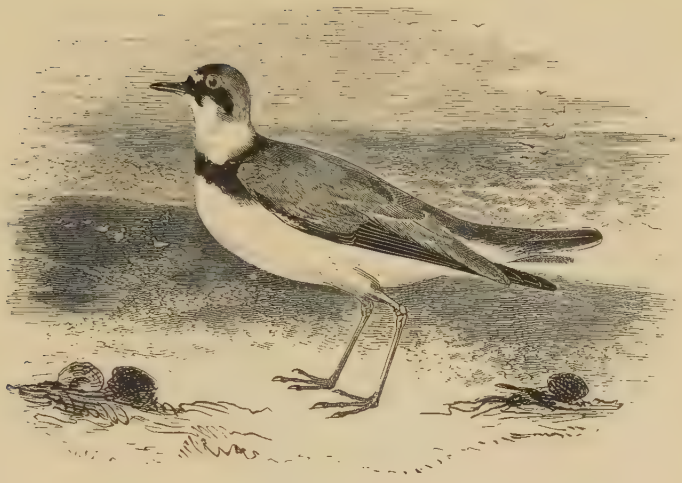
This bird is sometimes called the Ringed Dotterel—a name to be deprecated as having led to confusion with the true Dotterel, while locally it is known as "Stone-hatch" or "Sand-lark." Throughout the British Islands the Ringed Plover is generally distributed along the flat portions of the coast, as well as on sandy warrens and inland lakes at some distance from the sea, and on migration it is also found by the banks of rivers. The birds which are more or less resident here and on the opposite shores of France and Holland, as well as those which arrive from the north in autumn, are larger, more bullet-headed, and duller in the colour of the mantle than those which come from the south in spring; but these leave us after a short stay, though a few, perhaps, remain to breed in Kent and Sussex. Many individuals of this smaller race have been erroneously recorded as examples of the next species.

In summer the Ringed Plover occurs in Iceland, and it has been found on Jan Mayen, and even on the Seven Islands (lat. 80° 45′ N.), as well as on Spitsbergen. It has also been obtained up to 79° in

Greenland, as well as on the opposite side of Smith Sound and Davis Strait; but in America proper its representative is *Æ. semipalmata*, a smaller species with more developed webs between the toes. Our bird reaches Iceland in May and leaves in September, while on the Continent it inhabits most localities which are suitable, becoming rarer in the interior of compact countries like Russia, and more abundant in those which present a varied coast line, or are intersected by large rivers. It nests on Kolguev, Novaya Zemlya, and along the northern shores and the higher tundras of Siberia as far as Bering Strait; migrating southward on the approach of winter. The small race already mentioned occurs as far south as Madeira, the Canaries, and Northern Africa (including Egypt), going down to the Cape of Good Hope in the cold season; while in Central Asia it nests on the large salt lakes as far as Turkestan, and exceptionally it wanders to the north of India.

The nest is usually a mere shallow cavity in the sand, sometimes lined with small stones, but Col. H. W. Feilden has recorded an exceptional instance in which the green fleshy leaves and the stems of *Atriplex littoralis* were employed. Laying becomes general by the middle of April, and two broods are usually produced in the season, freshly-hatched young being often found in the first week of August. The eggs, 4 in number, are pear-shaped, and of a stone-buff colour, spotted with black: measurements 1·4 by 1 in. Various devices are practised by the parents to divert attention from their nestlings, though the latter can run as soon as they emerge from the shell, and are not easily seen, owing to the similarity of their colour to the surroundings. The food consists of worms, insects, and thin-skinned crustaceans, such as shrimps, sand-hoppers, &c.; particles of grit being taken to aid digestion. The usual note is a melodious whistle, and the alarm-cry may be syllabled as *pen-y-et*, but during the pairing-season the cock has a distinct love-call.

The adult male in spring has the forehead and a stripe behind each eye white; fore-crown, lores and sub-ocular region black; chin, throat and neck white, followed by a black collar, broadest on the breast; nape and upper parts hair-brown, with a narrow white alar bar; outer tail-feathers chiefly white, the rest brown with white tips; lower breast and belly white; bill black at the point, yellow at the base; legs orange. Length 7·75; wing 5·25 in.; in the smaller Continental form only 5 in. The female has the black collar less defined, and in winter both sexes are duller in colour. The young bird has the beak blackish, no black band on the fore-crown; loral stripe and gorget dusky brown; legs pale yellow.



THE LITTLE RINGED PLOVER.

ÆGIALITIS CURÓNICA (J. F. Gmelin).

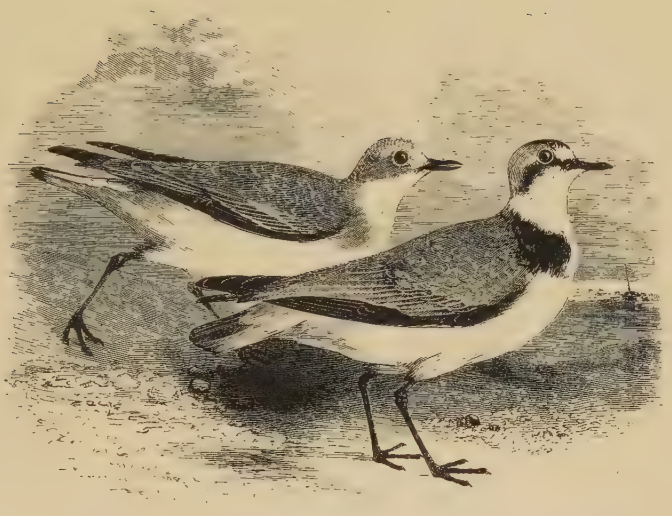
The true Little Ringed Plover is one of the rarest of our occasional visitors, and the genuine instances of its occurrence appear to be the following:—Years ago, Doubleday obtained an example at Shoreham in Sussex, and Mr. W. Borrer has another, shot near the mouth of Chichester Harbour, in May; Rodd's collection contains one killed on October 23rd 1863, at Trescoe in the Scilly Islands; while on Kingsbury Reservoir in Middlesex, in August 1864, Mr. Harting and Mr. R. H. Mitford each obtained an immature bird; and in the Seebohm collection at the British Museum there is an adult female shot at Freshwater, Isle of Wight, in August. Others have been recorded from time to time in 'The Zoologist' and elsewhere, but all those which have been submitted to competent authorities have proved to be specimens of the small Continental form of the Ringed Plover. The distinctions between the two are mentioned at the end of this article.

It is somewhat remarkable that the Little Ringed Plover should so seldom visit us, inasmuch as it is common on the Continent at no great distance from our shores. It is only a wanderer to the Færoes, but it nests in Scandinavia, and according to Bogdanow, occurs sparingly as far north as 64–66° N. lat. in Russia; while it owes its specific name to its occurrence in Courland, and it breeds

abundantly in Poland and Germany, though less plentifully in Denmark, Holland, Belgium, and Northern France. It does not affect the open sea-coast, preferring expanses of sandy soil by inland lakes and on rivers, and these it finds in some parts of France, the Spanish Peninsula (up to an elevation of 4,000 ft. in the Pyrenees), Italy, the south of Europe generally, and Northern Africa. In Asia it nests across Siberia to the Sea of Okhotsk, as well as in Japan, China, and in Turkestan up to an altitude of 4,000 feet; it visits India as far south as Ceylon during the cold season, and even reaches the Moluccas and New Guinea. In Africa it has been recorded from Mozambique on the east and the Gaboon on the west.

The usual breeding-places of this bird are sandy islets and strips of waste land overgrown with coarse wiry grass, on the margins of rivers; also the dried-up beds of winter-torrents and elevated stony plains. Incubation seldom begins before the latter half of May, when the eggs, 4 in number, are laid in a slight hollow; their colour is pale stone-buff, with minute dark brown spots and streaks, very different from the bolder markings prevalent in the preceding species: measurements 1·15 by ·85 in. The usual note is rendered by Naumann as *diä* or *deä*; but the love-call, chiefly uttered by the male when on the wing, is a more prolonged trill. The food consists of water-beetles and other insects, in search of which the bird has been observed to turn over small stones.

The adult Little Ringed Plover is smaller in size, slenderer in form, and one-fourth less in weight than *Æ. hiaticola*; the shafts of the primaries are all dusky, except the outer one which is white (whereas in the larger species there are on the shafts flecks of white which form a conspicuous bar when the wing is extended); the general colour of the upper parts is even paler in *Æ. curonica* than it is in Continental examples of the Ringed Plover. In spring the eyelids are golden yellow, and the legs are of a pale ochre colour. Length 6·5 in.; wing 4·5 in. The young exhibit a more decidedly sandy tint on the upper parts than do those of the Ringed Plover, and the down of the nestling is more distinctly buff.



THE KENTISH PLOVER.

ÆGIALITIS CANTIÁNA (Latham).

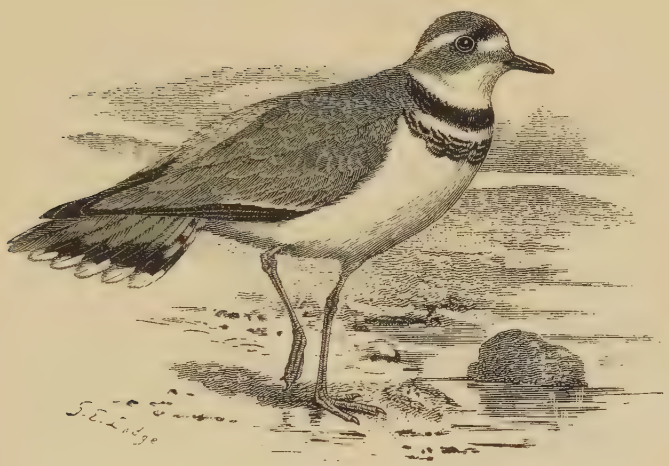
The Kentish Plover is easily recognizable by its incomplete pectoral band. It arrives on the shores of England in April, and departs, as a rule, in September; but individuals which were probably migrants from the Continent have been obtained on the east coast in October, Bridlington in Yorkshire being the most northern locality in which they have been noticed. Even in Lincolnshire the species is of rare occurrence, though more frequent in Norfolk and Suffolk; but on the shingle-beaches of Kent (whence it was first described), as well as in Sussex, it formerly bred in considerable numbers, though collectors have contributed to its decrease. Westward its appearance is unusual, and only a few specimens are recorded from Devon and Cornwall; but in the Channel Islands it is not uncommon, especially on Guernsey and the neighbouring islets. To Ireland it is a very rare visitor.

As a wanderer the Kentish Plover has been recorded on four occasions from the south-west of Norway, and it breeds in the south of Sweden, though it is rare on the Baltic coast of Germany. In Denmark, Holland and Belgium it is fairly numerous, while in France and the Spanish Peninsula it is abundant, both on the seashore and on brackish lagoons at some distance inland. It appears

to be resident throughout the basin of the Mediterranean, as well as in the Azores, Madeira and Porto Santo, the Canaries and the Cape Verde Islands; while in winter it has been found in Africa as far south as Cape Colony. In summer it frequents the Black, Caspian and Aral Seas, as well as the lakes of the Pamirs, Turkestan, Daüria and Mongolia, the island of Askold, Japan and China; migrating in the cold weather to the Malay Peninsula, Burma and India, while a small number nest locally in the last. In America the representative is *Æ. nivosa*, which has white—and not black—lores, when in breeding-plumage.

Towards the end of May, in warm seasons, the eggs are laid in a small hollow in the sand, or among fine shingle and broken shells, often in a nearly upright position, the points being buried and the thick ends just showing above the loose soil. They seldom exceed 3 in number, though I have found 4 in Spain and also in the Channel Islands; they are rough in texture, and of a yellowish stone-colour, spotted and characteristically scrolled with black: measurements 1·2 by ·9 in. Mr. H. A. Dombrain says that occasionally they are deposited on a heap of sea-weed thrown up by a very high tide. If disturbed when sitting, the bird will run a few yards, fly a little, then drop again and run, uttering a plaintive note; but when the young are hatched it sweeps closely round, accompanying each stroke of the wing by a sharp whistle, and then dropping suddenly and cowering with expanded wings and tail. The food is similar to that of the Ringed Plover: a species which is said to bully and drive from its haunts its smaller congener.

The adult male in spring has the forehead and a broad line above each eye white; lores and a stripe behind the eye black; fore-crown black; top of the head and nape reddish-brown; neck—all round—and the entire under parts, white; on each side of the neck a black patch which is *not* continued to the breast; upper parts—including the three central pairs of tail-feathers—hair-brown with darker shafts; outer tail-feathers white; bill, legs and feet black. Length 6·75 in.; wing 4·25 in. The female has no black on the fore-crown, her neck-patches are brown instead of black, and her colours are less bright. The young resemble the female, while the downy nestlings are more rufous than those of the Ringed Plover. The illustration represents an adult male in summer, and a young bird in autumn plumage.



THE KILLDEER PLOVER.

ÆGIALITIS VOCÍFERA (Linnæus).

In 1862 a mounted example of this American bird was identified by Mr. P. L. Sclater, who was informed by Mr. J. R. Wise that it had been killed in April 1859 (in the 'Ibis' 1862, p. 276, the year was erroneously given as 1857) near Christchurch in Hampshire; but as corroborative evidence of this was wanting and the specimen had changed hands during the interval, I did not consider it advisable to include the species in the 4th Edition of 'Yarrell.' On January 15th 1885, as stated in the preface to the above work, Mr. Jenkinson shot a bird, which I afterwards examined, at Tresco in the Scilly Islands (Zool. 1885, p. 113).

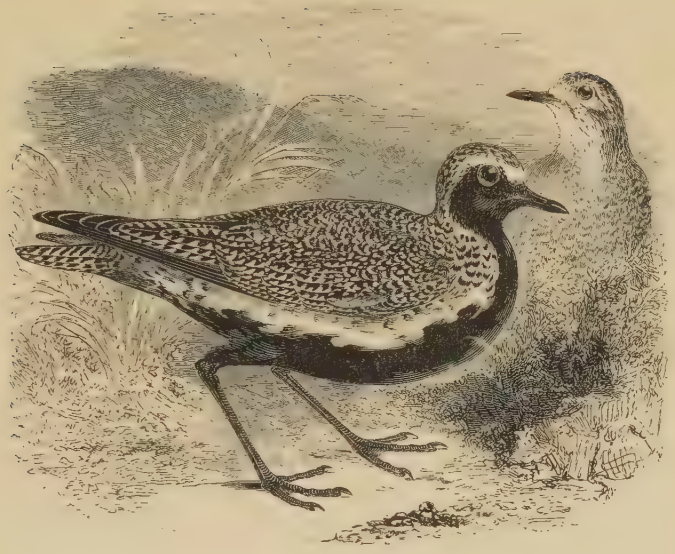
The Killdeer Plover has not yet been recognized on the mainland of Europe, though, according to Mr. J. Y. Johnson, it has been obtained on the island of Madeira. In America it is widely distributed, breeding from the plains of the Saskatchewan (where it arrives about April 20th) southward as far as Mexico; its migrations extending to the Bermudas, the West Indies generally, and tropical America down to Colombia. In California and the southern portion of the United States it is resident or only partially migratory; while even as far north as Long Island it has been met with up to the end of November and often makes its re-appearance quite early in the

spring. In New England it is by no means plentiful, its line of passage being more to the west; but exceptionally it visits Maine, and large flocks were observed near Portland between 28th and 30th November 1888.

The nest is usually a mere hollow in the ground, without any lining beyond a few bits of dry grass, or fragments of small shells arranged in the form of a ring. The eggs, 4 in number, are pear-shaped, and of a creamy-white colour blotched with dark purplish-brown, much resembling those of our Ringed Plover, though larger in size: measurements 1·6 by 1·1 in. During incubation the parents sit in turns upon their eggs, nor do they leave them by night or day unless disturbed, in which case they are very noisy and resort to the usual manœuvres of Plovers to divert the attention of the intruder. The note—to which the species owes its name—resembles the syllables *kill-dee* rapidly enunciated, generally in a loud clear tone, which often startles wild-fowl and renders this bird an object of dislike to the native hunter. The food consists of worms, insects and small crustaceans, chiefly obtained on inland pools and swamps; the actual sea-coast being rarely frequented by the Killdeer Plover, although it may be found on the neighbouring lagoons or back-waters.

The adult has the forehead and a streak behind the eye white; fore-crown banded with black; lores, crown, nape and upper parts umber-brown, with rufous margins to some of the long secondaries; alar bar and portions of the quills white; rump, tail-coverts, and basal portion of the long tail-feathers rufous, the subterminal portions of the latter being barred with black and tipped with white; throat and under parts white, with two black bands across the chest; bill black; legs yellowish-grey. Length 9·5 in.; wing 6·5 in. The sexes are alike in plumage; the young are more conspicuously marked with pale rufous on the upper parts. The Killdeer is a larger bird than the Ringed Plover, and its proportionally longer tail and legs give it a very graceful appearance.

For many of the above particulars I am indebted to 'The Water-birds of North America.'



THE GOLDEN PLOVER.

Charádrius pluviális, Linnæus.

The Golden Plover breeds in the British Islands, but it is most plentifully and generally distributed on its migrations and during the colder months of the year. Early in August a few birds with faded black breasts make their appearance, while large flocks of young usually arrive towards the end of September, and these are followed from October to November by the adults which have moulted. A return northward is noticed in March, when the birds which have their breeding-places on our moorlands retire from the coasts which they have frequented during the winter; but long after these have been engaged in the task of incubation, flocks from the south continue to pass northward; the plumage of the later arrivals being, as a rule, far darker, especially as regards the black breast, than that of our home-keeping individuals. These nest sparingly on the high ground in Devon and Somerset, more plentifully in Breconshire and other counties of Wales and the Marches, and in increasing abundance from Derbyshire northward to Sutherland. In the Orkneys, Shetlands, and Hebrides this species is common, and enormous numbers frequent the pastures and shores in winter. In Ireland it breeds on many of the mountains and several of the bogs, while vast flocks or

"stands" visit the coasts from early in autumn onwards, especially when the light of the moon enables them to feed by night.

In summer the Golden Plover has been found on Jan Mayen and in Greenland; while it is a regular visitor to Iceland, the Færoes and Northern Europe, and breeding as far south as the moors of Brabant, Luxembourg, Germany, and sparingly in Switzerland. Over the rest of the Continent it occurs on migration, passing the cold season in the basin of the Mediterranean, and wandering to Madeira as well as down the coast of Africa to Cape Colony. It visits Novaya Zemlya, and inhabits the tundras of Siberia as far east as the Yenesei, but there the smaller *C. dominicus* (the subject of the next article) predominates, and becomes its representative in Eastern Siberia. In winter our Golden Plover has been found in Turkestan, Baluchistan and Sind.

The slight and scantily-lined depression which serves for a nest is usually in short grass or heather, though often where the ground is quite bare; the eggs, 4 in number, are large in proportion to the size of the bird, and are of a yellowish stone-colour handsomely blotched and spotted with rich brownish-black: measurements 2 by 1·4 in. Incubation, in which the male takes an important part, commences towards the end of April even on the bleak moors of Northumberland, but is later in Northern Europe; the young run as soon as they are hatched, though unable to fly for a month or five weeks. The food consists of insects and their larvæ, worms, slugs, small molluscs, the fry of the common mussel, and a little vegetable matter. The note is a clear whistling *tlüi*, often heard by night over large towns at the times of passage; the spring-call being described by Mr. Abel Chapman as *tirr-pēē-yŏu*.

In spring the adult male has the forehead white; crown, nape and mantle blackish, profusely spotted with gamboge-yellow, the markings on the inner secondaries being of an oak-leaf pattern; tail barred with brown; above the eye a white line which continues down each side to the neck and even to the flanks; under parts black; *axillaries white*; bill, legs and feet black; no hind-toe. Length 11 in.; wing 7·5 in. The female has usually less black on the breast. After the autumnal moult the under parts are white, tinged with dusky yellowish-brown on the breast, and the upper parts are more yellow than they are in spring, when the breast becomes black: sometimes by the end of February in England. The young resemble their parents in winter-plumage, but are still yellower above; the flanks are more mottled, and the tips of the axillaries are often spotted with ash-brown, although the bases of those feathers are white.

THE LESSER GOLDEN PLOVER.

CHARADRIUS DOMÍNICUS, P. L. S. Müller.

There are two slightly different forms of this species, one of which is found in the eastern part of Asia while the other inhabits North America; and inasmuch as individuals referred to both of these have been obtained in the British Islands, the above trivial name has been adopted as being the least misleading. An example of the Asiatic race was found in Leadenhall Market among a lot of Golden Plovers in December 1874, and was said to have come from Norfolk; but this alone, however probable, did not suffice to procure the admission of the species to the British list. In the autumn of 1882 Mr. J. H. Gurney found a bird of the American form in the same market; and Mr. J. G. Millais has recorded (Zool. 1886, p. 26) the occurrence of a second American specimen in Perthshire, on August 3rd 1883. In 'The Field' of December 10th 1887 Mr. Millais stated that on November 26th he received from Stennis in Orkney, in the flesh, one of the Asiatic race. Lastly, an example of the American form was obtained near Belmullet, co. Mayo, on September 13th 1894.

A bird ascribed to the American race was obtained on Heligoland in December 1847 by Gätke. Of the Asiatic form the collection of that distinguished ornithologist contains no fewer than three examples, all captured in summer; while two have been taken in Malta, two (recently) on the mainland of Italy, one (in the possession of the late Lord Lilford) at Málaga in Spain, and one at Lublin in Poland. This race breeds on the tundras up to lat. 74° N. from the Yenesei to Bering Sea, and as far south as the plains of Mongolia, migrating in winter to China, Japan, India, the Malay region, Australia, New Zealand and Polynesia; it also visits the Prybilof Islands and the coast of Alaska, while, as might be expected, gradations are found in the Pacific which lead insensibly to the American form. This was first described and named *C. dominicus*, by P. L. S. Müller in 1776, from a specimen obtained on San Domingo. As a rule, it is characterized—especially in Eastern America—by its larger average size, relatively shorter inner secondaries, and less brilliant yellow tint. It has occurred at Olga Bay, Siberia, and it nests on the Barren grounds from Alaska

to Davis Strait, as well as in the northern part of Greenland; while on passage it traverses Canada and the United States, seldom occurring on the coast of California, but rather inclining to the east of the Rocky Mountains. In September and October large flocks often arrive in the Bermudas, the birds being extremely fat and highly appreciated for the table; while on Antigua, Martinique, Barbadoes, and other West Indian Islands, they are sometimes so tame or exhausted that they can be knocked down with sticks and stones. The migrations extend through tropical America, to Argentina on the east side and Chile on the west.

A nest of the Asiatic bird which Seebohm found on the Yenesei, was upon a piece of turfy land overgrown with moss and lichen, and was a mere hollow in the ground, lined with broken stalks of reindeer moss; while Mr. H. L. Popham says that the eggs are paler in ground-colour than those of the Golden or the Grey Plover: measurements 2 in. by 1·33 in. The eggs are 4 in number. Mr. MacFarlane, in his notes respecting the nidification of the American form on the Barren grounds, gives the average measurements as 1·9 by 1·3 in. The habits and food of this bird are similar to those of its congener; but its note, according to Seebohm, is more like that of the Grey Plover, being a plaintive *kö*, sometimes *kl-ēē*, and often the treble *kl-ēē-kö*; Mr. Popham also states that it is very distinctly recognizable.

In the breeding-season this species differs from the Golden Plover in being smaller, and in having *the axillaries smoke-grey to their bases* instead of white; the latter distinction existing at all seasons of the year. The winter-plumage, however, according to Seebohm, "differs widely from that of the Golden Plover, though it resembles very closely that of the Grey Plover, the spotted feathers of the upper parts being replaced by feathers having yellow margins. Young in first plumage resemble adults in spring-plumage on their upper parts, except that the tail-feathers, instead of being dark brown with transverse bars of pale brown, are uniform dark brown with marginal yellow spots." Young in down obtained by Mr. Popham are less marked with black on the sides of the head than are those of the Golden Plover, and the yellowish-white band across the hind-neck is more clearly defined. Average length of the Asiatic race 9 in., wing 6·5 in.; of the American 9·5, wing 6·75 in.

It has not been considered necessary to give an illustration of this species.

THE GREY PLOVER.

SQUATÁROLA HELVÉTICA (Linnæus).

This is a larger bird than the Golden Plover, with a more robust bill, and may be recognized on the wing by its black axillaries as well as its white tail-coverts; while, on handling a specimen, the presence of a distinct hind-toe is an unfailing characteristic. As compared with that species it is less numerous, and it is not found in large flocks, but small parties are widely distributed along our coasts and estuaries. A few black-breasted birds return from their northern quarters by the end of July or beginning of August; the majority of the young arrive in September; and the bulk of the adults come in October and November, after their moult. Considerable numbers spend the winter here, and flocks of a score or more frequent the sea-shore and mud-flats up to the end of May, by which time the black breast has been assumed; while birds which are not breeding remain till June and even July. Though a regular winter-visitant to Ireland, it is less numerous there than in Great Britain, in which, again, it is

more abundant on the east than on the west coast, while rare in the Outer Hebrides and Orkneys.

The Grey Plover has only once been obtained in Iceland, and there is no proof of its breeding on the fells of Scandinavia. In 1875 Messrs. Harvie-Brown and Seebohm took its eggs and young on the tundras of the Petchora; Mr. Trevor-Battye, and afterwards the Pearson Expedition, found it nesting on Kolguev; Mr. Popham was similarly successful on the Yenesei; further east Middendorff had already obtained its eggs on the Taimyr Peninsula in lat. 74° and on the Boganida in 71° N.; and its summer-range extends to Kamchatka. In winter this species visits the greater part of Asia, Australia, Madagascar, and both sides of Africa, while it occurs on passage in the Canaries and along the whole coast-line of Europe. A limited number cross the Continent by way of the valleys of the Rhine and the Rhone (in fact the bird owes the specific name *helvetica* to the earliest described specimens having been procured by Réaumur in Switzerland), while another route followed is along the Volga and Kama rivers. Though somewhat rare in Greenland, it is distributed over the Barren grounds of Arctic America in summer, and reaches Guatemala in winter.

The nest is a slight hollow in the moor; the eggs from ten identified clutches obtained on the Petchora between June 22nd and July 12th are described by Seebohm as 4 in number, intermediate in ground-colour between typical specimens of those of the Golden Plover and the Lapwing, the blotching being similar: measurements 1·9 by 1·4 in. The male takes part in incubation. The alarm-note is a plaintive *köp*, sometimes combined with a double *klee-eep*; while during the time that the bird is on our coasts its usual call may be syllabled by *tl-e-ih*, in a much sharper key than that of the Golden Plover. The food consists of worms, marine insects and their larvæ, small molluscs and sea-weed.

The adult male in breeding-plumage has the fore-crown white; upper parts mottled and barred with brownish-black and white, the latter predominating in the tail-feathers; lores, cheeks, throat, neck and breast black; vent and under tail-coverts white; axillaries black; bill, legs and feet blackish. Length 11·5 in.; wing 7·75 in. In the female the black is less pronounced. After the autumn moult the under parts are chiefly white, and the upper plumage has a more ashy appearance, especially in the female. The young are thickly streaked with brownish-grey about the head and neck, and the upper parts exhibit some yellow spots up to the end of December; the axillaries are dark brown, not black

THE SOCIABLE PLOVER.

VANÉLLUS GREGÁRIUS (Pallas).

In the autumn of the year 1860 or thereabouts, an immature example of this south-eastern species was shot from among a flock of Lapwings, near St. Michael's-on-Wyre in Lancashire; and having been subsequently placed in a case with many other stuffed birds which impeded the view, it was at first erroneously recorded as a Cream-coloured Courser. It afterwards came into the possession of Mr. W. H. Doeg, when it was correctly identified, and was exhibited by the late Mr. Seebohm at a meeting of the Zoological Society of London on November 20th 1888. Its pedigree appears to be perfectly satisfactory.

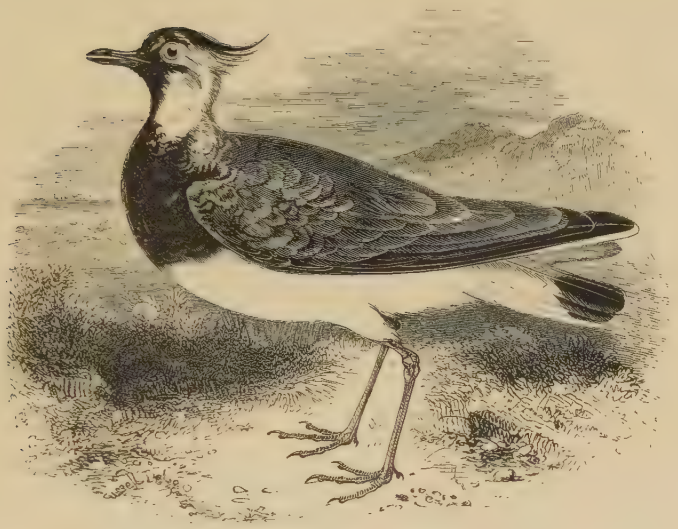
The Sociable Plover has not yet been observed in Heligoland or the northern part of Western Europe, but as long ago as March 1838 an adult (figured by Bonaparte) was shot near Rome, where a young female was obtained in November 1872, while a third example was killed near Sienna in the spring of 1856. On the Riviera an adult male was taken near Nice in April 1883. At Cadiz, in February 1868, I found in the market a bird—too advanced for preservation—in the plumage of the first year, a stage then little

known, but with which I happened to be familiar, having recently received from the Crimea the specimen figured in the background of the present illustration. The bird has not actually been killed in Poland, but near Lublin in September 1842 Taczanowski identified two adults—which he was unable to shoot—in company with some Golden Plovers. The Sociable Plover inhabits the steppes of the Crimea and of the district between the Don, the Volga and the Caucasus, as well as the Aralo-Caspian area and Turkestan; while on June 11th 1897 Mr. Popham shot an example in lat. 61° N. on the Yenesei, a great extension of the range of this species. In September it crosses the Pamirs to the dry uplands of Sind and the sandy plains of India, and wanders southward to Ceylon in the cold season, when it also visits Arabia, Egypt, Nubia and Abyssinia.

Eggs obtained through the Moravian colony at Sarepta, and taken on the Sarpa, are rather paler than those of the Lapwing and less thickly spotted: measurements 1·8 by 1·3 in. Prof. Menzbier says that the male takes part in incubation. The food consists of spiders, grasshoppers, beetles and their larvæ. Von Heuglin, who had opportunities of observing this bird in Kordofan and Sennaar, says that it frequented sandy localities and ground that had been burnt; it was, as a rule, quite silent, but every now and then he heard it utter a short, shrill whistle.

The adult has the crown of the head glossy-black, enclosed by a broad white band which starts from the base of the bill and runs backwards above each eye to the nape; lores and a narrow streak behind each eye black; nape and mantle pale drab, rather browner on the wing-coverts; secondaries conspicuously white, quills chiefly black; tail-feathers white, with a subterminal band of dark brown on all except the outer pair; chin white; cheeks and sides of the throat pale buff; breast ash-brown, turning to black on the belly, followed by rich chestnut-red on the flanks and vent; axillaries and under tail-coverts white; bill, legs and feet black. Length 12 in.; wing 8 in. The sexes scarcely differ in plumage. The young bird has the crown dark brown, with a buffish-white circlet; cheeks and nape dull buff, striped with brown; breast rather distinctly marked with 'arrow-heads' of ash-grey; belly dull white, with a little chestnut above the vent; the *two* outer pairs of tail-feathers white; axillaries and under wing-coverts white, as in the adult.

This species is often placed in the genus *Chætusia*, chiefly because it has not a crest; but it has a hind-toe, and for the purpose of the present work I have thought best to unite it with *Vanellus*.



THE LAPWING.

VANÉLLUS VULGÁRIS, Bechstein.

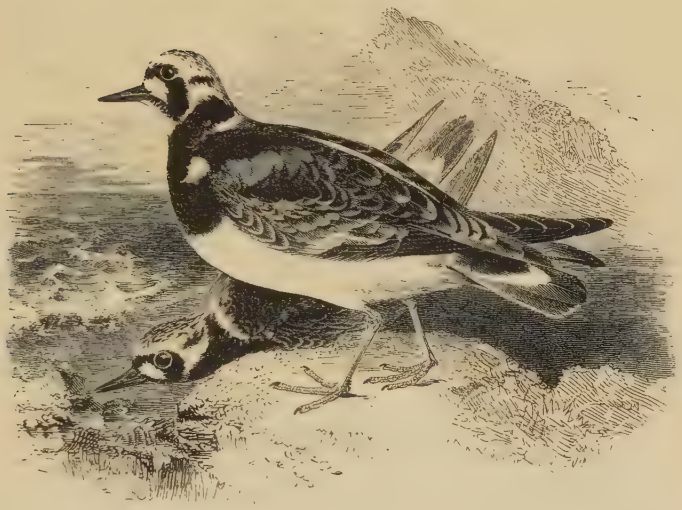
The Lapwing, also called the Peewit, owes the first name to the slow flapping of the rounded pinions, while the latter is obviously derived from the bird's familiar cry. Throughout the British Islands this species is generally distributed and is, as a rule, resident; though partial emigration from the north takes place in winter. Its favourite resorts are marshy pastures and moorlands, but its breeding-grounds, even when on flats, are usually above the risk of inundation, though these on the mountains seldom infringe upon those of the Golden Plover. In England, drainage and the increase of cultivation have diminished the numbers of nesting birds, but large flocks annually arrive from the Continent in autumn; while in Scotland the bird is abundant, and is on the increase in many of the northern districts, and the islands; it even visits St. Kilda every spring. In Ireland it is very common, but Sir R. Payne-Gallwey states that its eggs are not collected or appreciated there as they are in Great Britain, although the birds are freely netted for the table.

This species occasionally wanders to Jan Mayen and Greenland, while it is a rare visitor to Iceland; but it breeds sparingly in the

Færoes, as well as in Northern Europe up to the Arctic circle, and it is tolerably plentiful in the south of Norway and Sweden in summer. The majority of the eggs sent to this country are from the Netherlands and North Germany, where they are systematically gathered up to a date which is fixed by law. In suitable localities the Lapwing nests down to the extreme south of Spain, as well as, sparingly, in North Africa and Egypt; while its migrations extend westward to the Canaries and Azores. A wanderer was obtained in Barbadoes on December 24th 1886 (Feilden), and another has occurred in Alaska. Across Asia the species is found breeding from lat. 65° N. to the plains of Mongolia, and on the Tian-shan range up to an elevation of about 11,000 ft.; while in winter it is also met with in the Indian region down to about lat. 25° N.

The eggs, normally 4 in number, vary in ground-colour from olive-green to stone-buff, grey, or even pale blue, the blotches being blackish-brown: measurements 1·6 by 1·3 in. They are seldom to be met with before the latter part of March, and April is the usual month for laying, but they may be found fresh through May and into June. Almost any depression in turf, fallow-land, dried mud or shingle, suffices for their reception; a few bents placed crosswise being added, usually during incubation. When approached, the female sometimes runs silently from her eggs before taking to the wing, and it is the male which indulges in frantic swoops and twirls, accompanied by noisy cries; though when the young are hatched both parents practise every artifice to allure man or dog from their brood. The 'false nests' often found are scraped out by the cock in turning round, when showing off to the female. On the approach of winter large flocks are formed, which break up in the following spring; the birds flying in lines with great regularity. The food consists of worms, slugs and insects.

The adult male in breeding-plumage has the crown and the long erectile crest greenish-black; sides of the neck whitish; upper parts metallic-green, glossed with purple and bronze; quills chiefly black, the tips of the three outer pairs greyish; tail-feathers white, with a broad subterminal band of black, except on the outer pair; face, throat and upper breast bluish-black; belly and axillaries white; upper and under tail-coverts fawn-colour. Length 12·5 in.; wing 8·75 in. The mature female has a slightly shorter crest, and younger hens show some white on the chin. In winter the throat is white in both sexes. The young bird has a shorter crest and the dorsal feathers are edged with greyish-buff.



THE TURNSTONE.

STRÉPSILAS INTÉRPRES (Linnæus).

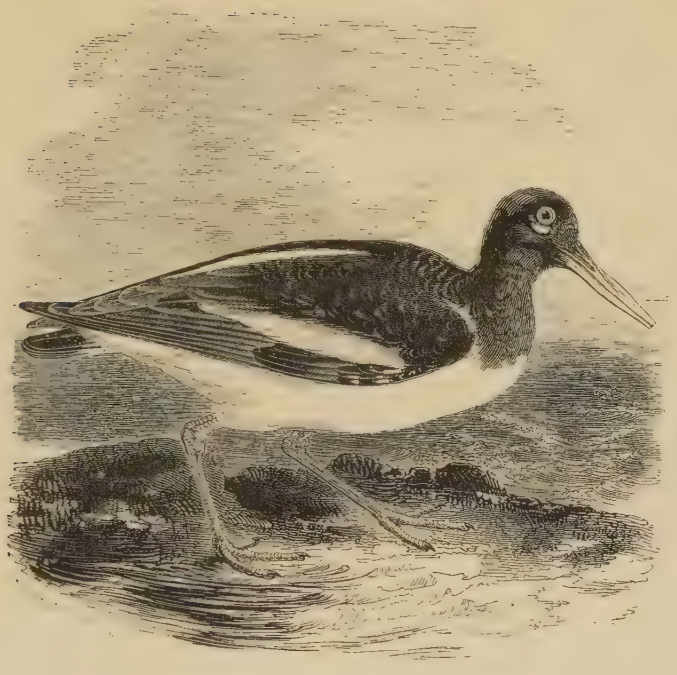
This species, conspicuous by the variety of its plumage, is a regular visitor to our sea-coasts, and at times to the margins of lakes and large rivers. Some birds make their appearance by the latter part of July, but the bulk of the migrants from the north do not arrive till August; while in sheltered situations on the east side of Scotland, as well as in the south and west of England, many stay throughout the winter. In May the return northward takes place, yet occasionally birds in nuptial dress and sometimes in pairs remain during the summer in localities apparently suitable for reproduction. Nevertheless authenticated eggs have not yet been obtained in any part of the United Kingdom, though diligent search might possibly be rewarded among the islands of Scotland or on the deeply-indented shores of the west of Ireland, where the bird is at all times far more plentiful than it is in England.

The Turnstone was found by Dr. Bessels far up Smith Sound, and it has occurred on Jan Mayen and Spitsbergen. It breeds in West Greenland up to lat. 77°, Iceland, and perhaps in the Færoes; but its most accessible nesting-places are on the coasts and islands of Scandinavia, Denmark, and the Baltic. It also breeds on Kolguev and on the South Island of Novaya Zemlya, while it was obtained on Franz Josef Land in May, and is found in summer

along the northern coast of Siberia as far as Bering Strait. During the cold season it ranges over Asia, and down to Australia, Tasmania, New Zealand, Polynesia, South America and the African region. There has been some reason for believing that the Turnstone might breed in the Canaries and Azores, while Mr. Tait says that in Portugal it is usually seen near the mouth of the Douro "from the beginning of April till the middle of September," adding that in the summer of 1869 a young bird was brought to him alive and kept in a cage for many months. No eggs have, however, been taken south of the Baltic. On migration the Turnstone is found along the entire coast line of Europe and on many inland waters, and it is generally distributed in North America, breeding in the Arctic regions.

The nest, close to high-water mark, is often a shallow depression lined with a few dry leaves and bents, under the shelter of bushes or scanty herbage on the coasts of the Northern seas or upon ledges of rock on their islets; but in Iceland, Kolguev and Novaya Zemlya the Rev. H. H. Slater found that fells at some distance from the sea were preferred. The eggs, 4 in number, are very distinct from those of any other species, being of a greenish-grey colour, spotted and streaked somewhat spirally with bluish-ash and brown: measurements 1·6 by 1·1 in. Incubation, shared by both sexes, takes place about the middle of June, only one brood being reared in the season. The Turnstone feeds chiefly on small crustaceans and molluscs, in search of which it may be seen—sometimes in parties—turning over stones or examining sea-weed, whence its Norfolk name of "Tangle-picker." It is easily tamed, and Mr. Tait has given an interesting account of the manner in which his captive bird called down a Whimbrel with which it afterwards lived (Ibis, 1887, p. 387). The note is a clear whistle, but a loud twittering is often uttered by the bird when on the wing.

In spring, as shown in the illustration, the adult male has the head, neck, upper breast and shoulders variegated with black and white; mantle streaked with chestnut and black; rump conspicuously white, followed by a dark brown patch on the coverts, most of the tail-feathers being of the same colour; under parts white; legs and feet orange-red, hind-toe turning inwards and not backwards. Length 9 in.; wing 6 in. The female is a trifle larger, but slightly duller in colour, and in autumn the chestnut tint is much reduced in both sexes. The young bird has the forehead and cheeks brown, collar dark umber, merely a buffish tint to the margins of the wing-coverts and secondaries, feathers of the back tipped with dull white.



THE OYSTER-CATCHER.

HÆMÁTOPUS ÓSTRALEGUS, Linnæus.

The Oyster-catcher inhabits the shores of Great Britain and Ireland throughout the year, exhibiting a marked preference for sandy bays, stretches of low flat rocks mixed with shingle, and mussel-scalps ; but it often occurs inland, and in Scotland it nests on all the large rivers and many of their tributaries on the east side, and along the Lochy in the west. In autumn the birds which have bred in the north pass southward, and a certain influx of visitors from the Continent takes place, so that large flocks may be seen from that time onward along the coasts. Owing to the black and white in its plumage, a common name for the bird is "Sea-Pie," while I think that 'catcher' is a corruption of the Dutch *aekster* (magpie). Another appropriate term is 'Mussel-picker,' and in the south-east of England "Olive" is applied.

To Greenland this species is merely a straggler, but it is resident in the southern districts of Iceland, and occurs in summer on the coasts of Europe, from the North Cape to the delta of the Rhone

and the head of the Adriatic. Throughout the greater part of the Mediterranean basin, however, it is principally a migrant; but it breeds on many of the inland waters of the Continent, and along the large rivers of Russia, as well as on the shores of the Black and Caspian Seas, whence it retreats in winter. In Asia the Arctic circle forms its northern summer-limit, while Burma, Ceylon, India, Baluchistan and Persia are visited during cold weather; migration extending down the Red Sea to Mozambique on the east side of Africa, and to Senegambia on the west. There are several other members of this cosmopolitan genus.

The eggs, usually 3, but sometimes 4 in number, are yellowish stone-colour, spotted and scrolled with ash-grey and dark brown: measurements 2·2 by 1·5 in. They are commonly laid on shingle or among sand-hills, and frequently on a pavement of small fragments of shells or on a tussock of sea-pink growing upon a narrow ledge of rock; but I have seen them on the summit of a lofty 'stack,' and also in the previously robbed nest of a Herring-Gull, while they have been found in meadows far from the sea, and Prof. Collett mentions a clutch laid in a cavity at the top of a felled pine. They are sometimes laid by the third week in April, while incubation becomes general in the second half of May, and lasts three weeks. On rocky coasts each pair inhabits a certain district, but on flat shores considerable numbers may be found associated, and their noise is perfectly deafening when the young are just hatched, the old birds flying close round the head of an intruder, except where they have been much disturbed. At other times the Oyster-catcher is remarkably wary, and alarms every other bird in the neighbourhood with its shrill *keep, keep*. It swims well and sometimes takes to the water of its own accord. Mussels, whelks, and limpets are neatly scooped from their shells by the bird's powerful bill; annelids, crustaceans, small fish and marine plants being also eaten.

The arrangement of the black-and-white plumage of the adult is shown in the engraving; bill orange-vermillion; irides crimson; legs and toes livid flesh-colour. Whole length 16·5 in.; wing 9·75 in. From autumn to spring the front and sides of the neck are white, and the bill is horn-coloured towards the tip. The young have the feathers of the back and wings margined with brown.

A Sheathbill, *Chionis alba*, of Antarctic America, obtained in Carlingford Lough, co. Down, on December 2nd 1892, is in the collection of Mr. R. M. Barrington. Living examples have often been sent from the Falkland Islands.

THE AVOCET.

RECURVIRÓSTRA AVOCÉTTA, Linnæus.

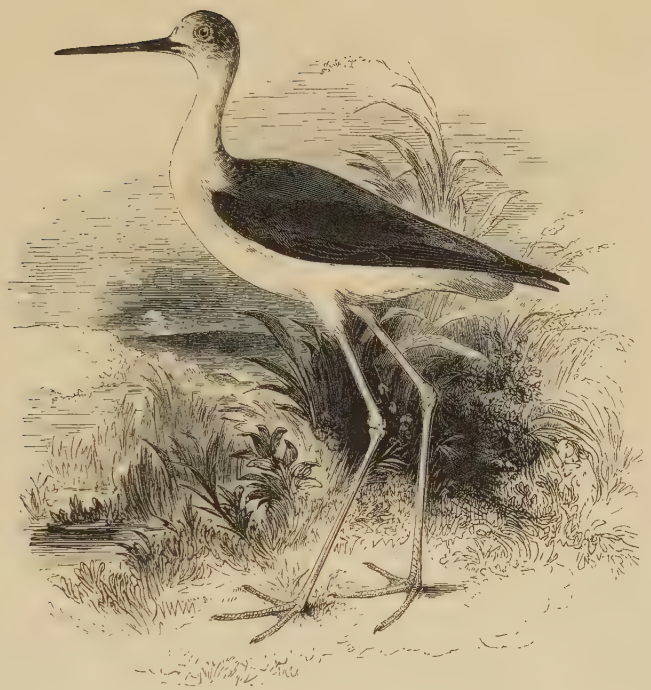
This remarkable bird was formerly a regular summer-visitor to England, and bred in considerable numbers in suitable localities, such as the coasts and estuaries of the Humber district, Lincolnshire, Norfolk and Suffolk. Reclamation of fen-land gradually circumscribed its haunts, and moreover a large colony at Salthouse appears to have been destroyed in consequence of a demand for Avocet's feathers for dressing artificial flies; while the collection of its eggs also contributed to the decrease of the species, and nesting in England had probably ceased by 1824. Small parties still arrive in spring, and occasionally in autumn, but the former are never allowed to breed, for the amasser of "British-killed" specimens offers inducements to the local gunners far exceeding the amount of any fine and costs that would be imposed under the Wild Birds' Preservation Act in the event of the offender's conviction. On the south coast the Avocet used to nest on the flat shores of Kent and Sussex, to which it is now only a visitor; while on the west side it is of rare occurrence and in the

Solway district it is unknown. North of the Humber and along the east coast of Scotland it is seldom seen, though stragglers have been met with in the Shetlands, Orkneys and Outer Hebrides. In Ireland its rare visits have been chiefly to the south, but one occurrence is on record from the estuary of the Moy in the west.

The Avocet still finds breeding-places in some districts of Denmark and along the southern shores of the Baltic, as well as in the Frisian Islands and on the coast of Holland; and southward, the delta of the Rhone in France and that of the Guadalquivír in Spain may be mentioned. It occurs in Northern France and on the coasts and inland waters of the greater part of the Continent on both spring and autumn migrations, while it is to some extent resident in the basin of the Mediterranean, and becomes abundant on the margins of the Black, Caspian and Aral Seas. Eastward, it extends across temperate Asia to Northern China in summer, and as far south as Ceylon in winter. In Africa it is found down to Damaraland and Cape Colony—in both of which it is said to nest, and it occurs in Madagascar. Representative species inhabit North America, the Andes of South America, and the Australian region.

The eggs are laid in May, on bare cracked mud near water, in some slight depression in the sand, or among scanty herbage; their number is normally 3–4, and in colour they are clay-buff, blotched and spotted with black: measurements about 2 by 1·5 in. The usual note is a clear *kluit*, whence the bird's Dutch name. The Italian designation "avocetta" and the Spanish "boceta" may be derived from *bocinetta* or some similar colloquial diminutive of the classical word *buccina* (a curved trumpet), with reference to the shape of the bill. To obtain the worms, aquatic insects and thin-shelled crustaceans on which the bird chiefly feeds, this bill is employed with a sideways scooping action which leaves zig-zag marks on the soft mud or sand, whence the name "scooper;" while the Avocet was also known as "cobbler's-awl duck" and "shoeing-horn," and, from its cry, as "yelper," "barker," and "clinker."

In spring the plumage of the adult is black and white, as shown in the engraving; the slender, pointed, and flexible bill is black, and resembles two thin flat pieces of whalebone coming to a point and turning upwards; the irides are reddish-brown; legs and toes pale blue. Length nearly 18 in. (bill 3·2), wing 8·5 in. After the autumn moult the light portions of the plumage are greyish. In the young the dark portions are tinged with brown and edged with rufous. The bill is distinctly upcurved in the nestling of only a day or two old.



THE BLACK-WINGED STILT.

HIMÁNTOPUS CÁNDIDUS, Bonnaterre.

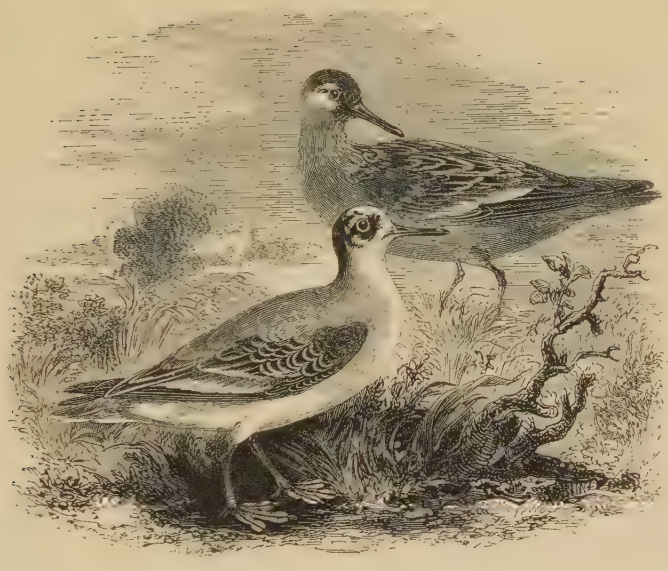
The occurrence of the Stilt in the British Islands was noticed as long ago as 1684 by Sir Robert Sibbald, who described and figured one of two examples which had been shot at a lake near the town of Dumfries. Since that date a few more have been obtained or observed—at long intervals—on the mainland of Scotland, as well as in the Orkneys and Shetlands; while two are recorded from Yorkshire, one each from Notts, Lincolnshire and Cambridgeshire, and about fourteen from Norfolk. Suffolk, Oxfordshire, Gloucestershire and some inland counties have also been visited, while in the south of England, from Kent to Cornwall, a good many specimens have been procured from time to time; on the west side, however, the Stilt is very rare, though Montagu mentions one from Anglesea. In Ireland it has been met with on five or six occasions. As a rule the occurrences in the British Islands have been in the months

of May, June and July, only a few of the wanderers being observed in autumn.

The Stilt is only an irregular visitor to Denmark, Germany, Holland, the north of France and the lakes of Switzerland; but—like the Avocet—it breeds sparingly on the Neuseidler See in Hungary, and abundantly in the marismas of Southern Spain, as well as in the marshes of Sicily, and on the low shores of the Black, Caspian and Aral Seas. It also nests freely by the lakes of North Africa, though even there, and throughout the basin of the Mediterranean, the bird is chiefly a summer-migrant, arriving in March or April and seldom remaining after the end of November. In winter it is found down both sides of Africa and in Madagascar; while in Asia it inhabits the warm and temperate regions, large numbers breeding in some parts of the north of India, as well as in Ceylon.

The eggs, full clutches of which I found plentiful in the south of Spain by May 4th, are usually 4 in number, and of a warm stone-colour with hieroglyphic-like scrollings and blotches of black: measurements 1·7 by 1·25 in. By the pools in the marismas they are placed in a slight nest of bents at the side of a tuft of rushes, often so near the water as to be coated with mud from the birds' toes; but on the lower and wetter ground Mr. Abel Chapman met with more solid structures, while on the lagoons of the Black Sea Messrs. Young and Seebohm observed nests from two to four inches high, and Col. Legge found great variety in the sites chosen in Ceylon. The food consists of small univalves, gnats and other flies, beetles and aquatic insects, in pursuit of which the bird wades up to the tarsal joints in shallow water. The note is a clear *pee*, *pee*, *pee*, and when the eggs or young are approached, *gnrēēt*, *gnrēēt*, *gnrēēt*, sharply reiterated. At such times the old birds fly close round the head of the trespasser on their territory, hovering above him with slow beats of their wings, and dangling their long legs, which are outstretched during the ordinary flight.

The male in first breeding-dress has the nape and hind-neck black, but in the mature bird those parts are white, like the head; mantle and wings greenish-black; tail grey; rest of the plumage white, with an evanescent pink tinge. Bill black, irides crimson, legs and feet rose-pink. Length from tip of bill to end of tail 13·5 in. (bill 2·5), wing 9·5 in., legs 10 in. The female has a browner mantle. The young bird has the nape, hind-neck and shoulders grey; back and inner secondaries ash-brown; quills brownish-black.



THE GREY PHALAROPE.

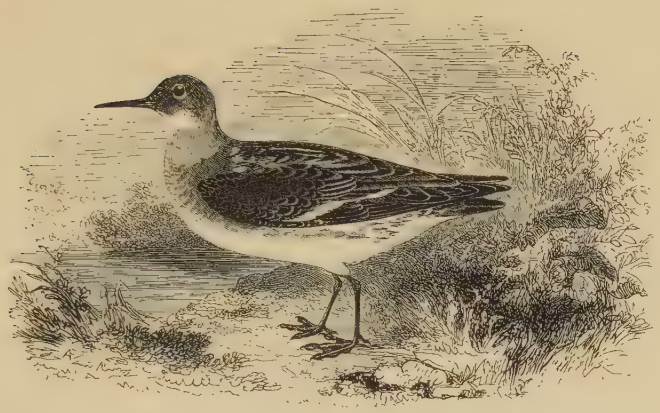
PHALÁROPUS FULICÁRIUS (Linnæus).

The Grey Phalarope owes its trivial name to the autumnal plumage in which it usually visits us, for during the breeding-season the prevailing colour is deep chestnut. At irregular intervals birds—chiefly young—make their appearance upon the shores of England, the favoured counties being those to the south-east, south and south-west; and Mr. J. H. Gurney estimates that during the great immigration between August 20th and October 8th 1866, upwards of 500 were killed, of which about 250 fell in Sussex, few birds touching the coast to the north of Ramsgate. A visitation of some importance in 1869 and a smaller invasion in the autumn of 1886 were almost confined to the south, though another in 1891 was more widely spread. Examples are occasionally obtained on the spring-passage. On the east of England this Phalarope seldom alights above Norfolk, but in Scotland it has occurred, sparingly, from Berwickshire to the Orkneys; it was not, however, taken in the Outer Hebrides until the autumn of 1890, though several times recorded from the Inner islands. In Ireland it is rare, but a few examples were obtained in the south in the autumn of 1886, and a good many in 1891. Individuals have often been killed far inland by the side of lakes or ponds, and pools of fresh or brackish water sheltered from the sea are favourite haunts.

The Grey Phalarope appears to be circumpolar in its breeding-range. It is common on the Liákoff Islands and at the Lena delta; while its eggs have been taken by Middendorff in the Taimyr district, by Mr. Popham at the mouth of the Yenesei, and by Col. Feilden on Spitsbergen; and many have been sent from the districts of Upernavik and Egedesminde in Greenland. Westward, Arctic explorers have noticed the bird as far north as 82° 30′, and it is abundant in summer on the shores of Alaska, as well as on the Asiatic side of Bering Sea. In winter its migrations extend to Chile and New Zealand, and China seems to be visited regularly, but there is much to be learned respecting the lines of passage in Asia, for the bird is rare on the Pamirs, and has only once been obtained in India (Calcutta, May 1846). In Europe, though seeming to miss the Volga valley, it is found on many inland waters and on the coasts down to the Mediterranean; it also visits North Africa.

Courtship is conducted by the female, and in June the eggs, 4 in number, are laid in a depression near some small pool in the spongy peat or moss; these are olive-buff, thickly blotched with umber-brown—less pointed, more boldly marked, and rather larger than those of the Red-necked Phalarope: measurements 1·25 by ·88 in. Incubation is performed by the male, who also takes charge of the young, which are sometimes on the wing by the middle of July and depart by the end of August. Small crustaceans and marine animals are the chief articles of food, in pursuit of which the birds may be seen swimming buoyantly on the waves—sometimes hundreds of miles from land—and also picking the parasites off the backs of whales and other cetaceans. The note is a sharp *tweet*, but the female sometimes utters a low *clink, clink*.

In breeding-time the female has the bill yellow with dark tip; forehead and crown blackish; cheeks white; under parts reddish-chestnut; feathers of the mantle blackish, with broad rufous margins; wing-coverts lead-grey tipped with white; legs, feet and lobed membranes yellow. This stage is shown by the bird in the background. Length 8·25 in., wing 4·9 in. The male is smaller and duller, with less defined white on the cheeks. In autumn the chestnut gradually disappears; by winter the under surface has become white, the back pearl-grey, and the margins on the mantle are white; the bill is black, the forehead white, and a black streak runs backwards from the eye. The bird in the foreground is in this stage. The young mainly resembles the adult in autumn plumage, but shows some tawny colour on the upper parts and breast.



THE RED-NECKED PHALAROPE.

PHALAROPUS HYPERBÓREUS (Linnæus).

A few pairs of this graceful species—the remnant of many—still nest in the Shetlands, Orkneys and Outer Hebrides, in localities which are protected from or undiscovered by the trading collector, and these birds arrive from the south in the latter part of May; while by August both old and young have departed. Along the east side of Scotland, however, this Phalarope is decidedly rare, and it is uncommon on migration in the west. To England its visits, even in autumn, are very irregular, though recorded, especially since 1870, in Northumberland, Yorkshire, Lincolnshire, East Anglia, some of the midland and most of the southern counties, occasionally in Wales, and exceptionally along the north-west coast. Occurrences in spring are unusual, and altogether the avoidance by this species of the greater part of the British Islands on its passage to and from its summer haunts is somewhat remarkable. In Ireland a bird was shot in co. Armagh, about November 13th 1891.

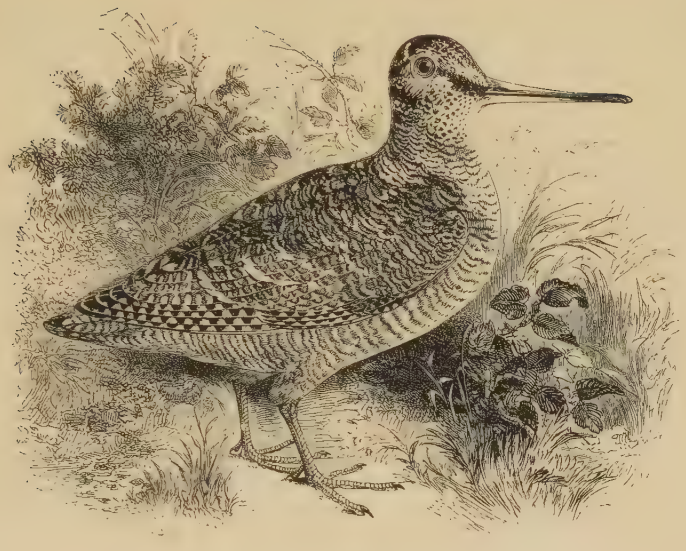
The Red-necked Phalarope breeds plentifully in the south of Greenland, Iceland, the Færoes, and above the forest-growth on the Dovrefjeld in Scandinavia as well as in the north, Novaya Zemlya, Siberia up to lat. 73° as far east as Kamchatka, and on the high ground by the Sea of Okhotsk. In Alaska and throughout the Arctic regions of America it is very abundant, and there again it nests by some of the lakes in the mountain ranges, as well as on the flat coast; while in winter or on passage it has been found down to the Bermudas and Guatemala. In the Old World its migrations extend to the Indo-

Malayan region, China and Japan, its line through Central Asia crossing the Pamir range. Unlike its congener, it avails itself of the route by the valley of the Volga, especially in spring; it visits the Black Sea district and some of the inland waters of Central Europe; and it occurs irregularly on both sides of the Mediterranean basin, though rare to the west of Italy. It is seldom found in the west and north of France, Holland or Germany; but towards the north-east end of the Baltic it is not uncommon on the autumn passage, when it also visits the Swiss lakes.

The nest is in a tuft of grass in a wet place, and the 4 eggs are often greener in ground-colour, blacker in their markings, and smaller and more pointed than those of the Grey Phalarope: measurements 1·15 by ·82 in. Courtship is performed by the female, who is sometimes accompanied by two males; and the cock-bird usually incubates, though both parents display great anxiety after the young are hatched. The note is a low *pleep*, *pleep*, or *wit*, *wit*, *wit*. The food consists of small crustaceans, marine insects, worms &c. Like the last-named species, the Red-necked Phalarope swims well, though not noticed so far from land.

In summer the adult female has the head, hind-neck, and shoulders lead-grey; the feathers of the back and wings somewhat darker, with a mixture of pale rufous; tips of the wing-coverts and secondaries white, forming a bar; tail-feathers ash-brown, the middle pair darkest; chin pure white; sides and front of the neck chestnut; centre of the neck and upper breast lead-grey; under parts white; bill black; legs, feet and lobes greenish. Length 7·5 in. (bill ·9), wing 4·4 in. The male is smaller, and has the colours on the head and neck much duller and less sharply contrasted. In winter the forehead and the greater part of the crown are white; nape and a streak through the eye sooty-brown; dorsal feathers margined with white; cheeks and under parts nearly pure white. The young in autumn have rufous and afterwards buffish-white margins to the upper feathers, but subsequently resemble their parents; though their feet are yellowish and the toes are much less lobed.

The third and largest member of the genus, *Phalaropus wilsoni*, is confined to America. Mr. J. Whitaker has a specimen which is said to have been shot "some years ago" in Leicestershire, but Mr. Montague Browne denies this (Verteb. Leicest., p. 151). A genus, *Steganopus*, has been devised for this species, which has a long slender bill, like our Red-necked Phalarope. Some ornithologists have placed the Grey Phalarope in a third genus, *Crymophilus*.



THE WOODCOCK.

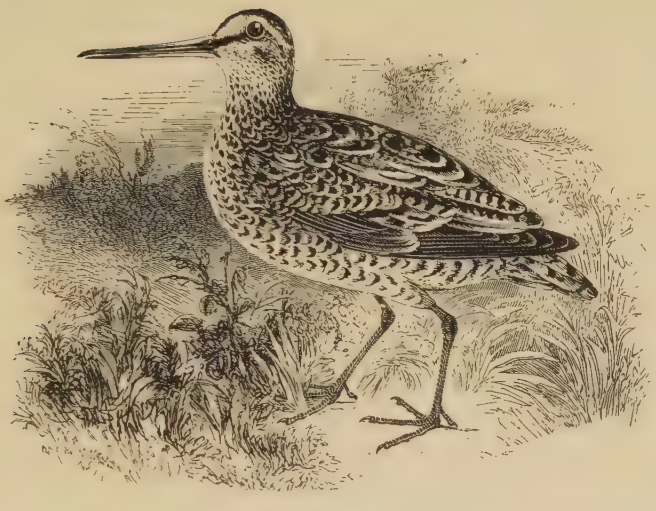
Scólopax rustícula, Linnæus.

The annual 'flights' of this well-known species usually begin in October, and a return migration northwards is noticed early in March, when the birds which intend to breed in our islands betake themselves to suitable coverts. Of late years, owing to the increase of plantations in the vicinity of feeding-grounds, the number of the individuals which remain has been greatly augmented; and nests have been found in most parts of England, Wales, Scotland and Ireland, except on some of the barest islands. Early in autumn the home-bred birds disappear from their haunts, few, if any, being seen until the October influx, and they are popularly supposed to have left the country; but their disappearance is partially attributable to self-effacement during the moult, for many birds which had been captured and marked with metal rings in the spring in Northumberland, have been shot in the same county in autumn. Migration takes place by night, when casualties against the lanterns of lighthouses and vessels are not infrequent. Birds have often been known to alight when the wind was from a quarter directly opposed to the direction whence they might be expected; but this was probably due to the existence of a different current of air in the more elevated strata through which they had been passing.

The Woodcock has only once been obtained in the Færoes and has not occurred in Iceland, though met with as a straggler in Newfoundland and on the Atlantic coast of the United States. A large proportion nest in the forests of Scandinavia and Russia; a smaller number breeding—up to the limit of tree-growth—in the rest of Europe, down to Northern Italy, Transylvania, the Balkans and the Caucasus. On both sides of the Mediterranean basin the Woodcock is chiefly found in winter, when it is plentiful in suitable localities; but in the wooded mountains of the Canaries, Madeira and the Azores it is resident. Southern Persia and India are only visited during the cold season, but the bird breeds in Kashmir and the Himalayas above 10,000 ft., and in the Japanese group as far south as the great volcano of Fuji-yama; while northward it passes the summer in the forest regions of Siberia.

The nest is merely a depression in some sheltered place, a lining of dead leaves being added, usually during incubation. The eggs—often laid by the middle of March, though more frequently in April—are usually 4 in number; they are slightly pyriform, and of a yellowish-white colour, blotched with ash-grey and two shades of reddish-brown: measurements 1·75 by 1·3 in. Two broods are sometimes produced in a season. The female often removes her young, and the balance of evidence appears to be that the nestling is clasped between the thighs of the old bird and pressed close to her body, sometimes even up to the base of the bill. During the day the Woodcock rests in dry grassy bottoms, or beneath thick bushes, such as holly or laurel; but at dusk and early in the morning, especially during breeding-time, the male persistently follows certain tracks along glades in woods—often called 'cock-roads'—uttering a deep as well as a whistling note; and similar routes are also traversed by both sexes on their way to and from their feeding-grounds. Worms, when procurable, are devoured in almost incredible quantities, while beetles and other insects, small crustaceans and even mussels, are also eaten. Few birds exceed 15 ozs. in weight, though such are on record.

The general colour of the upper plumage is reddish-brown vermiculated with black, and that of the under parts wood-brown with darker bars. Externally the sexes are alike. Length 14·25 in. (bill 2·9), wing 7·5 in. The second year's dress is paler than that of the first year, but there is great individual variation. In the young bird the outer webs of all the primaries show distinct fulvous notches; in the adult there are hardly any such markings on the 1st and 2nd outer webs. Partial albinisms are not uncommon.



THE GREAT SNIPE.

GALLINÁGO MAJOR (J. F. Gmelin).

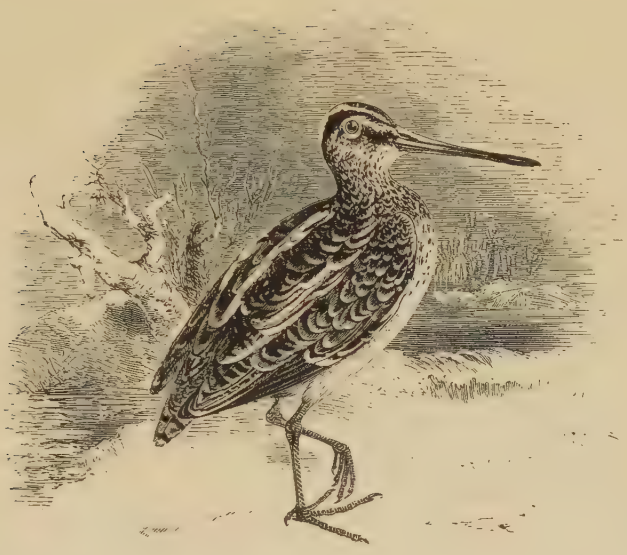
The Great, Double, or Solitary Snipe as it is often called, is an annual visitor in small numbers to the eastern and southern portions of England; the arrivals—chiefly of young birds—being generally between the middle of August and the middle of October. In the central and western districts the species is far less frequent; while, as regards the spring migration, only three examples from East Anglia seem to be on record. In Scotland about a dozen authentic specimens have been obtained, at long intervals: two of them in May. As regards Ireland, Mr. Williams, the well-known taxidermist in Dublin, is aware of only five occurrences, and three of these in the west; though more than a dozen large specimens of the Common Snipe have been forwarded to him for preservation, under the belief that they belonged to the rarer species.

The Great Snipe breeds in the lowlands and also on the fells of Scandinavia up to about lat. 70° N., as well as in Denmark (rather freely in Jutland), some parts of Northern Germany, and, sparingly, in Holland. In the marshy districts of Poland to the east of the Vistula, as well as in Russia down to Bessarabia, it nests freely; and Messrs. Harvie-Brown and Seebohm found it in abundance as far north as the delta of the Petchora. Over the rest of Europe it occurs on passage, though it is scarcely known in the west of France,

and uncommon in Spain; but in the Rhone valley and further east it seems to be equally frequent in spring and autumn, while distinctly more numerous on the vernal migration in Italy, Malta, the Ionian Islands and Albania. It occurs in Africa from Morocco to Egypt, and passes southward to Natal, where it arrives in September and October; returning northward in April, in which month it has also been obtained in Damara-land on the west side. In Asia it has been found, up to lat. 71° N., across Siberia as far east as the Yenesei (where it exceeds the Common Snipe in numbers), and southward to the Tian-shan range, Turkestan, Persia &c., but it has not yet been recorded from India or China.

The nest is a hollow, often among willow-bushes, or in some hillock above the level of a morass or forest-swamp; the 4 eggs are greyish-buff with pale purplish underlying blotches and bold characteristic purplish-brown surface-markings: measurements 1·8 by 1·25 in. Incubation begins at the end of May or early in June, and is said to last eighteen days, but it is probably longer, for the experiences of Mr. W. Evans show that nearly all the members of this group require three weeks. The young, which run as soon as hatched, are ready to fly by the middle of August. The food consists of the larvæ of insects (especially of flies of the genus *Tipula*), small slugs and worms, while, according to Prof. Collett, a few small stones are swallowed. In autumn, when the bird is often a perfect ball of fat, it weighs from 7 to 10 ozs. In this country many examples have been shot from grass-fields and clover, heather, potato-patches in a sandy soil, barley-layers, turnips, and drier situations than those frequented by the Common Snipe; while the late Lord Lilford remarked its predilection for currant-plantations in Corfu. Though often found in couples the Great Snipe is seldom, if ever, in 'wisps'; its flight is steady and heavy, and the tail is expanded like a fan. A low, grating sound is produced by the bill in spring.

The adult may be distinguished from the Common Snipe by its larger size, proportionately shorter legs and bill, more boldly barred under parts, and especially by the much greater amount of white in the tail-feathers, which are normally 16 (exceptionally 18 during the moult) and not 14 in number. Length 10·5 in., wing 5·5 in. The sexes are alike in plumage. In the young bird the tail-feathers are barred across both webs, but the ground-colour of the four outer pairs is nearly pure white and not mottled as it is in the Common Snipe; while the markings on the breast and flanks are more arrow-shaped than those of the adult, and the general tint is more rufous.



THE COMMON SNIPE.

GALLINAGO CŒLÉSTIS (Frenzel).

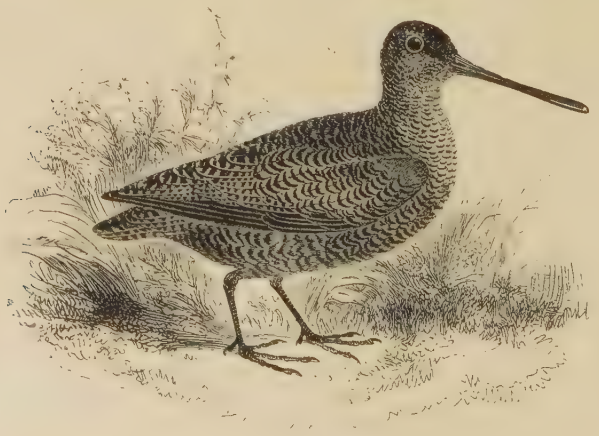
This species still breeds in England and Wales wherever drainage has not abolished the localities suited to its habits, and it is comparatively abundant in the marshes of Suffolk, Norfolk and Lincolnshire, while it is generally distributed on the northern moorlands, and up to a considerable elevation in Scotland and Ireland. The birds produced in the British Islands are few, however, compared to those which annually visit us in October and November, when many are killed by striking against the lanterns of lighthouses. These migrants, though they frequently shift their ground under the influence of the weather, often remain until March.

The Snipe is said to have occurred in South Greenland, and is fairly abundant as a breeding-species in Iceland, the Færoes, and throughout northern and temperate Europe down to the marshes of Northern Italy. On passage or as a winter-visitor it is found in the Atlantic Islands, as well as on the African side of the Mediterranean basin; it ascends the Nile valley to Abyssinia, and reaches Aden; while on the west side it occurs in Senegambia. In Asia, south of 70° N. in Siberia, it breeds down to the lofty table-lands of Yarkand, crosses the great central ranges on migration, and is found in winter

as far as the Moluccas. A closely-allied species with 16 tail-feathers inhabits North America, but our bird has wandered to the Bermudas.

During the breeding-season both sexes of the Snipe produce, while on the wing and especially towards evening, a drumming or 'bleating' sound, which appears to be chiefly due to the action of the wings, slightly assisted by the expanded tail-feathers. In April, though exceptionally in March, a slight nest in a tuft of grass, heather or bunch of rushes, or on the open moor, is prepared; the eggs —usually 4 in number and very large for the size of the bird—are yellowish- or greenish-white, blotched somewhat obliquely with several shades of brown: measurements 1·6 by 1·1 in. The alarm-note—*scape*, *scape*, and *chip*, *chip*—is as well known as is the zig-zag flight of the bird on being flushed; when feeding, however, the Snipe may be sometimes approached unawares, and will then try to escape notice by squatting. Occasionally it perches on trees &c., though the fact has been dogmatically denied by persons of limited experience. As its food consists of worms, insects and small molluscs, the Snipe often becomes very thin during a continuance of frost; its average weight is 4 ozs.

The tail-feathers are normally 14 in number; length of the bird 10·75 (bill 2·5), wing 5 in. A detailed description is rendered unnecessary by the wood-cut; and space will be more profitably devoted to a vignette of the so-called Sabine's Snipe, which is now generally admitted to be merely a dark form, seldom found outside the British Islands, wherein more than 60 examples have been obtained. The numerous variations in the plumage of the Snipe have led to the creation of several bad species.



THE JACK SNIPE.

GALLINAGO GALLÍNULA, Linnæus.

The Jack Snipe seldom appears in the British Islands before the beginning of September, and the heaviest arrivals take place in October; at which time the bird sometimes strikes against lighthouses, though with less frequency than the Common Snipe. Before its departure northwards in April its plumage has assumed all the bloom and brilliancy of the nuptial period, while the fact that a few individuals have been known to remain till late in spring and even throughout summer, has given rise to suppositions that the Jack Snipe might breed with us; there is not, however, a single authenticated instance of its having done so in any part of the United Kingdom. During the colder months of the year it is generally distributed, and though less numerous than the Common Snipe, it is more ubiquitous, while exhibiting a marked preference for certain localities.

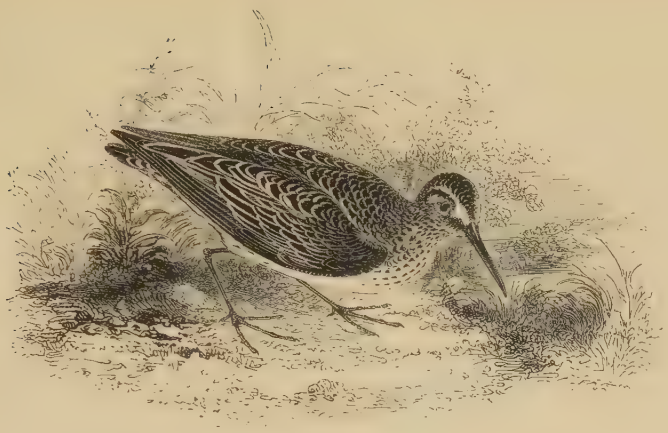
As a wanderer the Jack Snipe was obtained in the Færoes in 1890. In summer it inhabits Scandinavia, especially to the north of the Arctic circle, and in Western Russia it nests as far south as St. Petersburg; but east of Archangel it appears to be infrequent, and Messrs. Harvie-Brown and Seebohm did not observe it on the Lower Petchora. Putting aside unsubstantiated assertions respecting its supposed breeding below lat. 55° N., it may be described as a bird of passage over the remainder of the Continent, and in the south it is often plentiful—in some years even more so than the Common

Snipe—during winter. At that season it also visits North Africa and Egypt, where it sometimes remains as late as May; and ascends the Nile to Abyssinia. In Asia it breeds on the tundras of Siberia as far north as lat. 70°, though not found nesting in the valley of the Yenesei; while on passage it visits Japan and even Formosa in the cold season, as well as Tenasserim and the rest of the Indian region, Persia, and Turkestan; and it has been obtained in August on the Sayan Mountains (at 8,000 ft.) in North-western Mongolia.

For the first details of the nidification of this, as of many other species, we are indebted to Wolley, who found the bird breeding in the latter half of June on the marsh of Muonioniska in Lapland. The nests are described as being loosely made of little pieces of grass, *equisetum*, and a few old leaves of the dwarf birch, placed in a dry sedgy or grassy spot close to more open swamp. The Jack Snipe weighs about 2 ozs., yet its 4 eggs weigh more than 1½ oz. These, so disproportionate to the size of the bird, are yellowish-olive, spotted and streaked with brown, the latter colour being somewhat more predominant than in those of the Common Snipe, while they are rather smaller, averaging 1·5 by 1 in. During the breeding-season the Jack Snipe makes a 'drumming' noise, which Wolley compared "to the cantering of a horse over a hard road: it came in fours with a similar cadence, and a like clear yet hollow sound." The food consists of larvæ of beetles and other insects, always accompanied by a little grit. A continuance of severe weather does not seem to impoverish this bird, and between the fattest of several Jacks and the leanest of some Common Snipes, weighed the same day, I have found a difference of only ⅓ oz. in favour of the larger species.

The adult male in breeding-plumage exhibits a large amount of metallic-green and purple on the upper parts; the female is, on average, a trifle larger in size but not so bright in colour. In winter the reddish-brown of the upper parts is obscured by a tinge of grey; while in the young bird the green and purple reflections are wanting. Varieties are very uncommon, but a melanism shot near Staines was recorded by the late Mr. F. Bond. Length 7·5 in. (bill 1·5), wing 4·25 in. The tail-feathers are only 12 in number, for which reason, supplemented by the fact that there are two notches on each side of the posterior margin of the breast-bone—the Common Snipe having but one—this species has been placed apart by some ornithologists in the genus *Limnocryptes*.

The Red-breasted Snipe, which followed this species in the 1st Edition, is now removed to p. 621, before the Godwits.



THE BROAD-BILLED SANDPIPER.

LIMÍCOLA PLATYRHÝNCHA (Temminck).

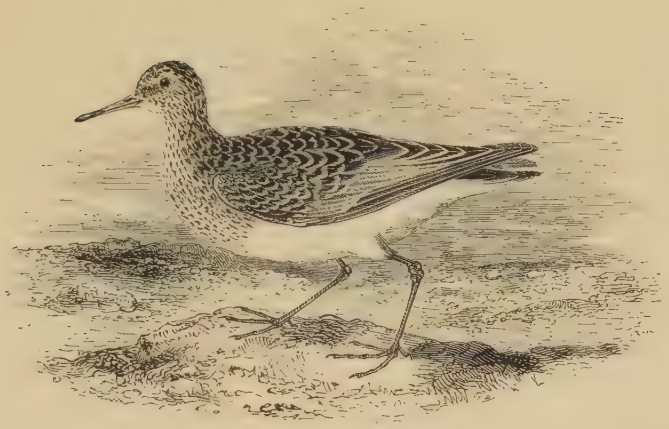
The Broad-billed Sandpiper was first made known as a visitor to the British Islands by Hoy, who recorded an example shot on May 25th 1836, on Breydon Broad, Norfolk. This locality afforded a second on May 25th 1856, a third on April 23rd 1858 (Zool. p. 6096), and a fourth on September 5th 1891, while another was killed at Cley in August 1895. The late Mr. W. Borrer had a specimen obtained near Shoreham in October 1845, and three have since been procured near Rye in the autumn or early winter of 1887, 1895, and 1896; while one was shot at Littlestone, Kent, in September of the year last mentioned. Sir H. S. Boynton possesses one killed at Hornsea Mere, Yorkshire, in April 1863. One, shot near Belfast, Ireland, on October 4th 1844, is in the Museum of that city.

It is evident that this species usually migrates to the eastward of our islands; although it breeds no further off than the Dovrefjeld and other districts of Scandinavia, and visits the coasts and inland waters of Denmark, Holland (seldom), Germany, France and Switzerland. It has not yet been noticed in the Spanish Peninsula, but in Italy its occurrences are not infrequent, though irregular, and large flocks —which have probably made use of the Brenner Pass—sometimes alight in the marshes of Venetia. From Finland and the tundras of European Russia, where it nests, a south-easterly line of flight brings it to the Black Sea and the Aralo-Caspian region; Severtzoff

obtained a specimen on the Kara-kul Pamir, and the species is found locally in various districts of India, though common only at the mouths of the Indus and the Irawaddy. Strange to say, it has not been found breeding in the Arctic portion of Siberia, but it occurs on Lake Baikal and plentifully on the Sea of Okhotsk; visiting Japan, China, the Philippines, the Malayan region, and the Moluccas in the cold season. From North Africa and Egypt, its winter-progress can be traced along the Red Sea to Madagascar.

The nesting-habits were first made known to English readers by the late Richard Dann, who found small colonies of this Sandpiper in the grassy morasses of Lulea- and Tornea-Lapmark, as well as at about 3,000 feet above sea-level on the Dovrefjeld. Wolley's explorations subsequently rendered us familiar with a series of its eggs, which vary in colour from rich chocolate to greenish-brown, mottled with umber: measurements 1·2 by ·9. According to Mr. F. S. Mitchell the lining of the nest—which is placed in a tussock of grass—is suited to the colour of the eggs, the darkest ones being laid on the brown withered leaves of the mountain-willow, and the lighter ones on grass; he found them on the Dovrefjeld as early as June 9th, but in Lapland the latter part of that month is the usual time for laying. Incubation spots were found by Prof. Collett in both sexes. The bird sits very close and, when flushed, usually drops again a short distance off; early in the season, however, it soars high in the air, rising and falling suddenly, like the Snipe, and repeating the note *too-woo*, rapidly. The food consists chiefly of insects and their larvæ.

The adult male in breeding-plumage has the feathers of the crown, shoulders and mantle very dark brown, variegated with white and rufous, the latter colour predominating on the margins of the long inner-secondaries; quills and central tail-feathers blackish, outer tail-feathers pale ash-brown; throat and breast white, tinged with rufous and spotted with dark brown, as are also the flanks; belly white; bill high at the base, very flat and wide, and rather abruptly decurved near the tip; legs and feet dark olive. Length 6·5 in. (bill 1·2), wing 4·25 in. The female is somewhat paler on the back, and slightly larger. In the young the upper feathers are more broadly margined with greyish-white. In winter the general upper plumage is ash-grey, very similar to that of our Dunlin; but a distinctive characteristic is the small amount of white on the secondaries and the sides of the upper tail-coverts.



AMERICAN PECTORAL SANDPIPER.

TRÍNGA MACULÁTA, Vieillot.

SIBERIAN PECTORAL SANDPIPER.

TRINGA ACUMINÁTA (Horsfield).

The American Pectoral Sandpiper has been observed in the British Islands with far more frequency than any other species of wader from the New World. The first authenticated specimen was shot in October 1830, at Breydon, Norfolk, in which county seven more have since been obtained; Suffolk can claim four; Yorkshire four or five (the last on September 28th 1897); Durham two; and Northumberland one, on June 27th 1853. There are also records of one from Eastbourne in Sussex; one from Kent on August 2nd 1898; two from North Devon; one from Falmouth in Cornwall; and four from the Scilly Islands—among the last an example on May 27th 1840. A young bird (one of three) was shot in Cumberland on October 18th 1888. In Scotland, an immature bird was killed at Don-mouth, Aberdeenshire, on October 2nd 1867, and another (identified by Mr. Harting) near Loch Lomond on November 24th 1882, while a third was shot at Westray, Orkney, by Mr. F. M. Ogilvie on August 26th 1889. In Ireland, Mr. Williams of Dublin found in the market a remarkably fat male, sent from Portumna, co. Galway, with Snipe, in October 1888. Except where otherwise mentioned, all the above occurrences have taken place in autumn or winter.

This species has not yet been met with on the Continent of

Europe, and the correctness of its supposed identification on the Asiatic side of Bering Strait is open to question. In summer it is distributed across the Barren grounds, from Point Barrow and the mouth of the Yukon to Hudson Bay; while on migration it is common throughout the Dominion of Canada and the United States, ranging to the Bermudas, Bahamas and West Indies generally, and as far south as Patagonia and Chile in winter. It has occurred several times in the south and west of Greenland.

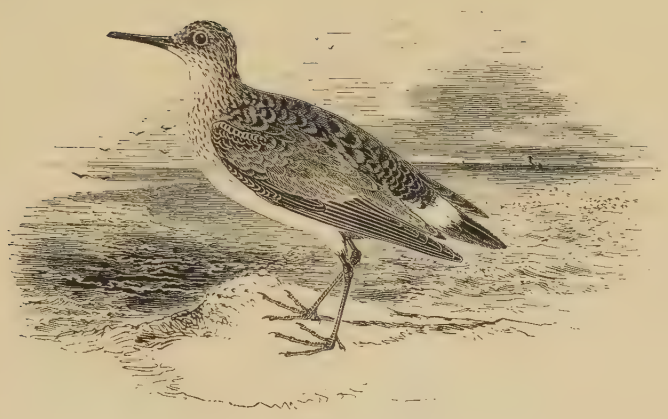
The naturalists of the United States Expedition to Point Barrow in 1882 and 1883 obtained eighteen sets of eggs, each complete clutch consisting of 4; these have a drab or greenish ground-colour, blotched with umber-brown: measurements 1·5 by 1·1 in. The nest is said to be built in the grass, in some high and dry locality, and never in the marsh like that of Phalaropes. The birds pair soon after their arrival towards the end of May or early in June, when the male may be seen taking short, low flights, with the wings held high and beaten stiffly, while the throat is puffed out like a goitre (whence the name Pectoral), and a muffled *hoo*, *hoo*, *hoo*, *hoo*, is constantly repeated. The food consists of insects—especially coleoptera, and sea-weed, on which the birds become remarkably fat.

The adult has the feathers of the upper parts dark brown with buff and rufous margins; secondaries with but little white on their edges; rump and tail-coverts dusky-brown; central tail-feathers nearly black, the rest ash-brown with paler margins; cheeks and throat dull white striped with hair-brown; breast buffish, profusely streaked with brown; under parts white. The sexes do not differ in plumage. Length 8 in. (bill 1·1), wing 5·3 in. The young bird has fewer stripes on the breast.

An adult example of the Siberian Pectoral Sandpiper was shot on August 29th 1892, at Breydon, Norfolk; while a bird of this species, now in the Norwich Museum, is said to have been obtained near Yarmouth in September 1848. The former is described and figured in 'The Ibis' 1893, pp. 181–185, pl. v.

This species breeds in Eastern Siberia, but its eggs are as yet undescribed. In autumn it visits the Commander Islands, wanders to Alaska, and passes along the east side of Asia to Australia, New Zealand, and Polynesia.

The adult is more rufous than the American species on the crown, mantle and breast, and the markings on the under parts are pronouncedly arrow-shaped and descend to the flanks. The young bird has very few stripes on the breast. Length 7·4 in.; wing 5·25 in.



BONAPARTE'S SANDPIPER.

TRINGA FUSCICÓLLIS, Vieillot.

This American species resembles a Dunlin in winter-plumage, but may always be distinguished by its smaller size, shorter bill and white upper tail-coverts. The first British example on record was shot prior to 1839, in Shropshire; while subsequently three have been obtained in Cornwall, two in the Scilly Islands, four at Instow in North Devon, two in Sussex, and one at Kingsbury Reservoir in Middlesex. There is a specimen in the Belfast Museum, believed to have been killed near that city prior to April 15th 1836.

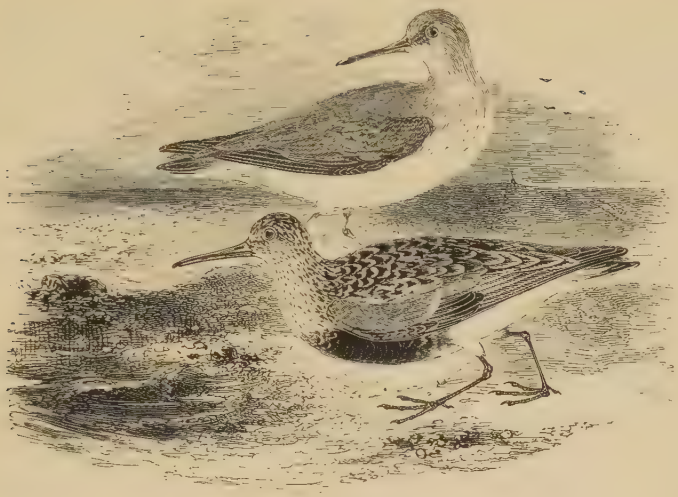
On the Continent of Europe this Sandpiper has not yet been observed, for the *T. schinzi* of Brehm and some other ornithologists is a small form of the Dunlin; though our bird is the *T. schinzi* of Bonaparte, and under the name of Schinz's Sandpiper was figured and described in the 1st, 2nd and 3rd Editions of 'Yarrell.' On June 28th 1897, a solitary female of this species was shot near Cape Flora, in the south of Franz Josef Land (Ibis 1898, p. 259): a very remarkable occurrence, for the bird has not yet been identified in any part of Siberia. Even in Alaska it is rare, only two specimens having been obtained by Mr. Murdoch at Point Barrow; but it is generally distributed in Arctic America from the Mackenzie valley (where it breeds abundantly) eastward; while it occurs in Greenland in autumn, and is said to have visited Iceland. On migration it is common in the Mississippi valley, and along the whole Atlantic coast to Florida; ranging southward to the West

Indies, Central America, Colombia, Brazil, Argentina, the Falkland Islands, the Straits of Magellan, and, on the Pacific side, to Peru and Chile.

Authenticated eggs obtained by Mr. MacFarlane on the Barren grounds near the Arctic coast, have a rufous-drab ground-colour, and are boldly blotched with dark brown, especially at the larger end: measurements 1·35 by ·95 in. The complete clutch consists of 4, and the nest is a mere depression in the ground, lined with a few decayed leaves. Dr. E. Coues says that he has frequently observed this bird on rocky shores covered with sea-weed and moist with the falling spray, and of all American Sandpipers it is the most gentle and confiding. When startled, it emits a soft, low *weet*, different from the note of any other wader, flying off in very compact flocks in a vacillating manner, alternately showing the upper and under parts, and being easily recognized on the wing by the conspicuously white upper tail-coverts. It usually associates with Semipalmated Sandpipers, and, in common with other small species, is known by the name of "Peep." Rodd remarked that the call of the birds killed in Cornwall was shorter and sharper than that of the Dunlin. The food consists of insects, small crustaceans, marine animals &c.; and with us, as in America, the bird appears to be partial to rocks which are covered with sea-weed and slope down to the water.

The adult in summer has a white streak over the eye; feathers of the upper parts ash-brown with dark centres, the edges being grey and rufous; quills dusky-brown; rump dark ash-brown; upper tail-coverts chiefly white, though streaked laterally with brown, the central pair—which are not conspicuous—being dark; tail-feathers ash-brown, except the central pair, which are dark brown, pointed, and elongated; chin white; cheeks, neck, upper breast and flanks greyish-white, speckled and streaked with dusky-brown; axillaries, belly and under tail-coverts white; bill very short, straight, and nearly black; legs and feet dark olive. The female is a trifle the larger and more richly coloured. Length 7·25 in. (bill ·9), wing 4·75 in. In winter the mantle is brownish-grey, and the streaks on the breast and flanks are less sharply defined. The young are more mottled with white and rufous on the back, while the throat and breast are suffused with buff.

The trivial name is attributable to the fact that Schlegel named the species after Bonaparte, in ignorance of Vieillot's earlier description.



THE DUNLIN.

TRINGA ALPÍNA, Linnæus.

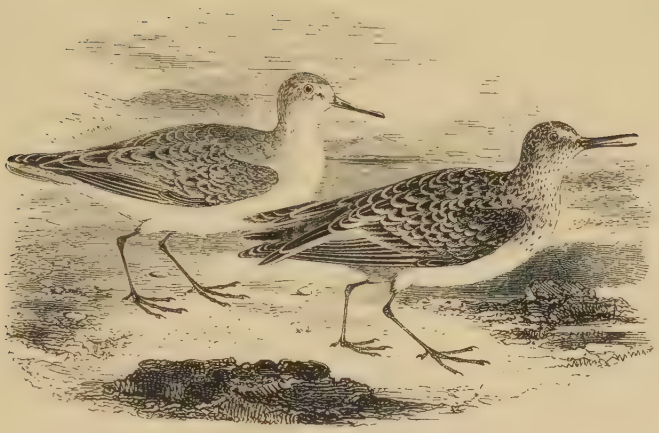
The Dunlin is the most numerous of the Sandpipers which frequent our shores and tidal rivers, and there it may be found throughout the year, for although many of the adults retire inland for nesting purposes, yet a number of immature birds remain during the summer. Its favourite breeding-quarters are wild and often elevated moorlands, which are comparatively rare in the south of England; but nests have been found in Cornwall and Devon, and I have seen the young hardly able to fly on Exmoor in Somerset. In Wales it undoubtedly nests in Cardiganshire and Merionethshire, and it formerly did so in the marshes of the Dee in Cheshire; while it still breeds in Lancashire, and in some numbers on the mosses on both sides of the Solway. On the east side its eggs have been obtained in Lincolnshire, and pairs are scattered over the moors from Yorkshire northwards to the Cheviots. In Scotland, where suitable situations abound, the bird is pretty generally distributed on the mainland, though local in Sutherland; and it is rather plentiful on many of the islands as far as the Shetlands. In Ireland, it nests locally, from Wicklow up to Donegal and Londonderry; while in autumn and winter it frequents the coasts in thousands.

The Dunlin varies considerably in size, length of bill, and colour of plumage; and even in the Palæarctic region there appear to be

two races: a large and northern one of duller tints, and a smaller brighter bird to which Brehm applied the name *T. schinzi*. North American individuals are characterized, as a rule, by their larger size, longer bills, and more rufous summer-plumage, but in sketching the geographical distribution I consider these as merely forms of one species. With this proviso, it may be said that the Dunlin ranges in summer to East Greenland, Spitsbergen, Iceland, the Færoes, Scandinavia, Kolguev, South Novaya Zemlya, and the tundras of Russia. Southward, it nests in Holland (locally), Denmark, and along the coast of Northern Germany; while, according to Prof. Giglioli, it breeds in the marshes of Venetia in North Italy; and Mr. Abel Chapman shot a bird from its eggs in the extreme south of Spain. During the colder months of the year the Dunlin is met with on all the sea-shores and many of the inland waters of Europe, as well as in the Canaries; and in Africa it migrates down the east side as far as Zanzibar. In summer it inhabits the greater part of Siberia, while it winters in China and many districts of the Indian region. In America it nests in the north, descending on the Pacific littoral to California and on the Atlantic to the West Indies; it is also found in Greenland.

Early in May on the salt-marshes—though somewhat later on the fells—the Dunlin forms a slight nest, which is often in a tussock of coarse grass, or among sea-pinks, short heather &c.; the eggs, 4 in number, are greenish-white, blotched and spotted with two shades of reddish-brown: measurements 1·35 by ·95 in. During the pairing-season the birds soar to a moderate height, uttering a somewhat prolonged *dwee*; but in autumn, when in flocks, a distinct *purre* may be heard. From this the species derives one of its local names, while it is also called "Stint," "Ox-bird" and "Sea-snipe." The food consists of worms, small crustaceans, and marine insects.

The adult in spring (represented in the foreground) has the crown of the head rufous, streaked with black; mantle chestnut, variegated with black; rest of the upper plumage chiefly ash-grey; throat and upper breast greyish-white with dark stripes; lower breast black; belly white. As a rule the females are larger and have longer bills than the males. Average length 7·5 in. (bill 1·25), wing 4·5 in. In the young the feathers of the head and back have large black centres and rufous margins; the chin is white; the upper breast tawny-buff, with dark streaks which enlarge to spots on the lower breast and flanks; belly nearly white. In winter the adult is chiefly ash-colour above, with a distinct white alar bar, and the under parts are white, with a mottled greyish band on the lower neck.



THE LITTLE STINT.

TRINGA MINÚTA, Leisler.

The Little Stint arrives on the east side of England every autumn, and again on the passage northward in spring. Its numbers on the mud-flats of Norfolk are sometimes considerable, but on the whole the British Islands appear to lie on the outskirts of the chief line of flight pursued by this somewhat eastern species. On the south coast this Stint is not very common, while westward its occurrences are decidedly irregular, the sandy flats of Lancashire and of the Solway district being the localities it most affects. In Scotland, it occurs every autumn on the east coast as far north as Aberdeenshire; while it has recently been observed in considerable numbers on the Moray Firth as well as in the Orkneys, and Saxby met with it in the Shetlands; but on the west side it is decidedly rare. According to A. G. More, it is found every autumn in Ireland, chiefly along the north-east shore, but is nowhere plentiful.

On its autumnal migration this species visits the greater part of Europe, and, except on the west coast of France, it is almost as abundant on the spring-passage. It does not appear to winter in any numbers on the northern side of the Mediterranean, though many individuals remain in Morocco, Algeria, Tunisia and Egypt; but the majority make for the extreme south of Africa, the Seychelles, and Arabia, crossing the great ranges of Asia on their way to the Indian region. The breeding-grounds of the Little Stint were first discovered by Middendorff in 1843, as far east as the Taimyr river, Siberia, in lat.

74° N.; but in the summer of 1872 Messrs. Harvie-Brown and Alston obtained a bird in nuptial dress at the mouth of the Dwina, while Prof. Collett found the species common on the Porsanger-fjord in Norway, proving that it bred further to the westward than had previously been supposed; and in July 1875 Messrs. Harvie-Brown and Seebohm were the first to take the eggs in Europe, near the mouth of the Petchora. Nesting-places have since been discovered by Henke near Archangel, Mr. E. Rae in the Kola Peninsula, Prof. Collett in North Norway, Mr. Trevor-Battye on Kolguev, the Pearson Expeditions on the last-named and other islands (especially Waigats) up to Belootchia Bay in Novaya Zemlya, Dr. O. Finsch near the Kara Gulf, and Mr. Popham on the Yenesei. Birds found on the Lena delta and further east in Siberia have redder breasts in breeding-plumage, though undistinguishable in winter, and have been named *T. ruficollis*.

The nest is a mere hollow in the moor, scantily lined with dead leaves &c.; the eggs, 4 in number, are, as a general rule, miniatures of those of the Dunlin: measurements 1 by ·75 in. Fourteen beautiful illustrations are in the 'Eggs of the Limicolæ,' by the late F. Poynting. Incubation begins in the second half of June, and the male takes a full share. The sitting-bird appears to be very quiet and tame when at the nest, from which, however, it sometimes endeavours to divert attention by feigning lameness. The note is described as a sharp *wick*, but in autumn, when the birds are in flocks, their call resembles the confused chirping of grasshoppers. Aquatic insects, small crustaceans, worms, molluscs, and occasionally the seeds of plants, constitute the food.

The adult in summer-plumage (represented in the foreground) has the upper parts variegated with rufous and black like a Dunlin; chin white; throat and upper breast tinged with rufous and speckled with dark brown; under parts white; bill, legs and feet black. Length 6 in. (bill ·7), wing 3·55 in. The female is slightly larger than the male. After the autumn moult there is no red on the throat, and the upper parts are of an ashy-brown, though always with more rufous than is the case in Temminck's Stint. The young have the feathers of the back edged with buffish-white; the legs and feet are blackish even from the nestling stage. As pointed out by Mr. Harting, the Little Stint resembles a miniature Dunlin (except for the black breast), while Temminck's Stint is more like a small edition of the Common Sandpiper; these remarks being especially true of winter-plumage.

THE AMERICAN STINT.

TRINGA MINUTILLA, Vieillot.

The American Stint has been obtained in this country on three occasions. The first example was shot on a piece of wet grass-land adjoining the sea-shore in Mount's Bay, Cornwall, on October 10th 1853, by W. S. Vingoe, who showed it to E. H. Rodd, by whom it was recorded in 'The Zoologist,' p. 4297; the occurrence being also noticed under the name of *Tringa pusilla* in the Preface (p. vi) to the 3rd Edition of Yarrell's 'British Birds.' In September 1869 a second example was killed on Northam Burrows, near Bideford, by Mr. Rickards of Clifton (Zool. s.s. p. 2025), who brought the freshly-skinned specimen to Mr. Harting for his inspection, and its identity has been vouched for by that competent authority (Hbk. Brit. Birds, p. 143). On August 22nd 1892—and also on Northam Burrows—another example was shot by Mr. Broughton Hawley, on whose behalf I exhibited it at a meeting of the Zoological Society (P. Z. S. 1893, p. 178). The date is erroneously given in 'The Zoologist,' 1892, p. 411, as 16th August; that being the day on which Mr. Hawley first observed the bird. He informed me that our Little Stints did not arrive there until later. The species has, therefore, as good a claim as many other stragglers to be noticed in this work; but it has not been considered necessary to figure it, as an engraving would not adequately show the points of difference between it and the Little Stint. The American bird is rather smaller, with a proportionately longer and more slender bill, while it is conspicuously darker at all seasons; in the breeding-plumage the fore part of the chest is ashy-buff, with distinct spots of dark brown —not rufous with tiny dots as in *T. minuta*; and the legs are dusky olive-brown, whereas they are black in our Little Stint.

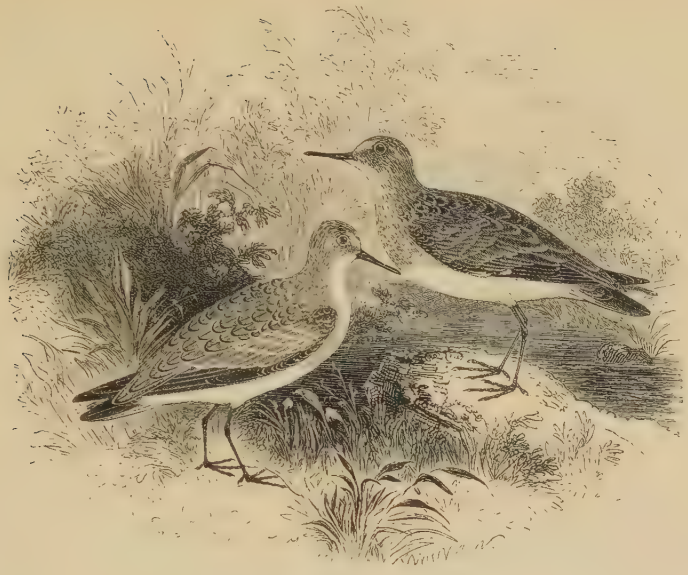
This species, called by American ornithologists the Least Sandpiper, has visited Greenland, and is widely distributed throughout the Arctic portions of the New World, breeding as far south as Sable Island—a little below Nova Scotia, as well as in Newfoundland, Labrador, and the northern regions generally as far west as Alaska. A limited number winter in the Gulf States, but the majority pass onward to Mexico, the West Indies, Central America

and Brazil. In autumn large flocks take an easterly direction as far as the Bermudas, while on the west side the species is extremely common in Southern California.

A nest found in Labrador by Audubon is described as a hollow lined with a few blades of dry grass, the locality chosen being under the lee of a small rock, exposed to all the heat the sun can give in that country. The eggs, 4 in number, are of a rich cream-yellow tint, blotched and dotted with very dark umber, especially at the larger end: specimens in Mr. Dresser's collection measure 1 in. by ·8 in. Of twenty nests found on the Barren grounds by Mr. MacFarlane, all but six were taken between June 21st and 30th. Worms, small crustaceans and marine insects are the chief food of this species. The note is a shrill twitter, resembling the syllables *peep-peet*.

The adult in breeding-plumage has the feathers on the head and back blackish, slightly edged with rufous; hind-neck ashy, varied with rufous; wing-coverts ash-grey, exteriorly margined with buff, the greater coverts with white edges which form an indistinct alar bar; quills ash-brown, blacker towards their tips, the shafts whitish-brown, with the exception of the outermost which is chiefly white and only dusky towards the extremity; lower back and rump deep black; tail-feathers pale ash-grey, the middle pair elongated and blackish like the rump; lores, eyebrows, and sides of the face whitish; throat white; chest ashy, mottled with dark brown in the centres of some of the feathers; rest of the under surface white; under wing-coverts whitish, some of the lower ones mottled with brown; bill nearly black; legs dusky olive-brown; iris dark hazel. Externally there is no material difference between the sexes. Total length 5·25 in., wing 3·5 in. In autumn some of the feathers of the back and scapulars have pale grey edges. The winter-plumage is ash-grey above, some of the dorsal feathers being dark purplish-brown in the centre and margined with white; the lower part of back and the rump are blackish; the upper wing-coverts like the back, the greater coverts clearer brown, and indistinctly tipped with white; rest of the plumage as in summer.

The Semipalmated Sandpiper, *T. pusilla*, or *Ereunetes pusillus*, another very common and widely-distributed species in America, may always be distinguished from the above by having the anterior toes webbed at the base. It has not yet been obtained in Europe, but visits the north-east of Siberia.



TEMMINCK'S STINT.

TRINGA TEMMÍNCKI, Leisler.

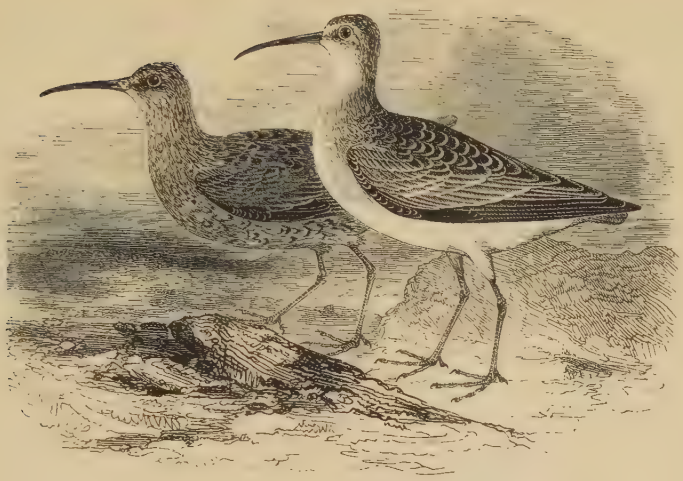
Though less rare on migration than was formerly supposed, this species is more irregular than the Little Stint in its visits to Great Britain, notwithstanding that the western limit of its breeding-grounds are at no great distance from our northern shores. There are, however, only two or three trustworthy records of its occurrence in the east of Scotland (Aberdeenshire); while merely a few examples, at long intervals, have been obtained on the east coast of England between Northumberland and the south of Lincolnshire, in autumn. In Norfolk a good many have been met with at that season —one as late as November 23rd—while about ten have been procured on the return passage in May. Southward this species can be traced along the rest of the eastern sea-board, and on the Channel to Cornwall and the Scilly Islands; it has also been found inland, as at Kingsbury Reservoir in Middlesex, Foulmire in Cambridgeshire, Mansfield Reservoir in Nottinghamshire, Ribbleton Moor in Lancashire &c. On the west side it is very rare, and since 1832 only six examples have been authenticated between the Solway district and the estuary of the Dee, while there is no record from Pembrokeshire. According to Thompson a specimen was procured near Tralee in

Ireland in January 1848 : a very remarkable date, inasmuch as, with this exception, the bird has not been known to remain during the winter in the United Kingdom.

Temminck's Stint breeds as far south as Trondhjem in Norway, and in those parts of Sweden, Russia and Siberia which lie beyond the limits of forest-growth ; also, it is said, in the Stanowoi Mountains. On its migrations, which extend to the Malay Archipelago, it visits China, crosses the Asian tableland to India, and descends both sides of Africa, to lat. 10° N. on the east side and to Senegambia on the west. A considerable number, however, spend the winter in the Mediterranean basin, and on passage the bird is found on the shores as well as on many of the inland waters of Europe ; it is, in fact, far more partial than the Little Stint to rivers, lakes and ponds.

The nidification of this species was first made known to us by Wolley, who found the bird breeding, somewhat locally, to the north of the Gulf of Bothnia. The nest, seldom far from water, is a scantily-lined depression in sedge, rushes or short grass ; the eggs, 4 in number, vary from pale buff to greenish-grey, blotched with several shades of brown : measurements 1·1 by ·8 in. Prof. Collett never found the females near the nest or young, and the brooding-birds which he shot were all males with large incubation-spots ; but the Rev. H. H. Slater, Mr. Popham and others have shot females from the nest. In the courting-season both birds may be seen hovering or floating in the air like butterflies, uttering a "very musical little warble" (H. H. Slater). The usual call-note in autumn is a sharp *ptirr*. The food consists of worms, marine insects, and larvæ of *Staphylinidæ* ; fragments of grit being taken to aid digestion.

The adult in summer-plumage has the feathers of the upper parts greyish-brown with darker streaks, and with broad blackish bars on the mantle ; the *shaft* of the *outer primary* nearly *white*, the other shafts dusky, like the rest of the quills ; wing-coverts tipped with white ; the *two outer pairs of tail-feathers white* ; throat and breast buffish-brown with darker streaks ; under parts and axillaries white ; bill blackish ; legs and feet greenish-grey in life. Length 5·75 in. (bill ·6), wing 3·8 in. The sexes are alike in plumage. After the autumn moult the dark markings on the back are lost, and the general colour is similar to that of the Common Sandpiper. In the young bird the upper feathers are tipped with grey ; the breast shows few spots ; the outer tail-feathers are less purely white, and the legs are yellowish.



THE CURLEW-SANDPIPER.

TRINGA SUBARQUÁTA (Güldenstädt).

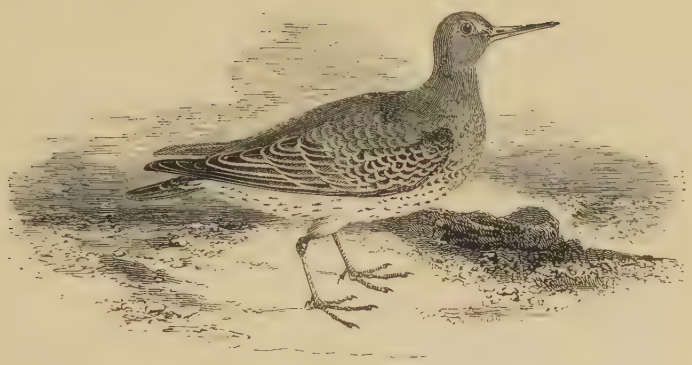
This species, which derives its name from the fact that its decurved bill somewhat resembles that of the Curlew, is an annual migrant—in varying numbers—to suitable parts of the coast of Great Britain, especially the estuaries of the east side of Scotland, Northumberland, the Humber district, Norfolk, Kent, Sussex, Hants, Dorset, and thence westward to Cornwall; while it may sometimes be found on inland waters. On the west it is decidedly less frequent, and its occurrences in the north of Scotland, the Orkneys and Shetlands, seem to be irregular. The principal influx—chiefly of young birds—takes place in August and September, the journey southward being resumed by the end of October; but in Ireland the Curlew-Sandpiper has been known to remain in the southern counties until November or even December. On the spring-passage it has been met with as early as March 19th, and birds in the red summer-dress continue to pass northward along the east coast of England till June.

The Curlew-Sandpiper has not yet been obtained in the Færoes, Iceland, Greenland, or Spitsbergen; while in Scandinavia and even in Finland it is principally observed on the autumnal migration, being very rare in spring. Although examples had been obtained near Archangel, and also at the mouth of the Petchora and on Kolguev, as well as in nuptial dress on the Yenesei (close to the Arctic circle) on June 15th, yet it was not until July 3rd 1897 that Mr. H. L. Popham

shot a female from a nest containing 4 eggs, near the mouth of the last-named river. Even there, the species was very scarce, and the Yenesei probably forms the western breeding-limit. Further east Middendorff had been nearly successful, for he observed birds dispersed over the tundras of the Taimyr in lat. 74° N. in June, and secured a female with a partially-shelled egg in her oviduct; while Dr. Bunge noticed migrants passing over the Lena delta, probably on their way to the Liákoff Islands, and the 'Vega' Expedition obtained a specimen close to Bering Strait on June 6th 1879. Mr. J. Murdoch procured an example at Point Barrow, Alaska, on June 6th 1883, but, with this exception, the species is unknown in Arctic America, while it is of rare occurrence on the Atlantic seaboard of the United States, and is exceptional in the West Indies. In winter it has been found down to Patagonia, Tasmania, and Cape Colony; while the mountain-ranges of Central Asia offer no barrier to its progress to or from the Indian region, and Severtzoff always maintained that it bred on the lofty Pamirs. In spring, migrants in the richest red plumage are to be seen from the Canaries and Spain to Egypt and the Levant, passing northwards.

Mr. Popham's nest, above mentioned, was a rather deep hollow in a ridge of the tundra; the 4 eggs resemble some of those of the Common Snipe, though smaller: average 1·45 by 1 in. (see Pr. Z. S. 1897, p. 490, pl. li., figs. 1–4). The bird is generally found, later in the year, in small flocks on sandy shores, ooze and salt-marshes, frequently associating with Dunlins and other Waders, though as a rule it keeps somewhat apart. Its wings are comparatively long and pointed, and the flight is very strong, especially down wind, the white rump being then conspicuous. The note is more prolonged than that of the Dunlin; the food consists of aquatic insects, small crustaceans, and worms.

The adult in summer-plumage has the head, neck and mantle chestnut, streaked and barred with black and grey; upper tail-coverts white tinged with buff, and broadly barred with black; quills and tail-feathers ash-grey; under parts chestnut-red, slightly barred with dark brown and grey on the abdomen and flanks. After the autumn moult the rufous colour is lost, and the under parts become white. Length 8 in. (bill 1·4), wing 5·1 in.; females being rather larger than males. The young bird (figured in the foreground) has the upper feathers margined with buff; tail-coverts white; throat and upper breast tinged with buff, and streaked with pale brown; remaining under parts white; bill at first shorter and less decurved than in the adult.



THE PURPLE SANDPIPER.

TRINGA STRIÁTA, Linnæus.

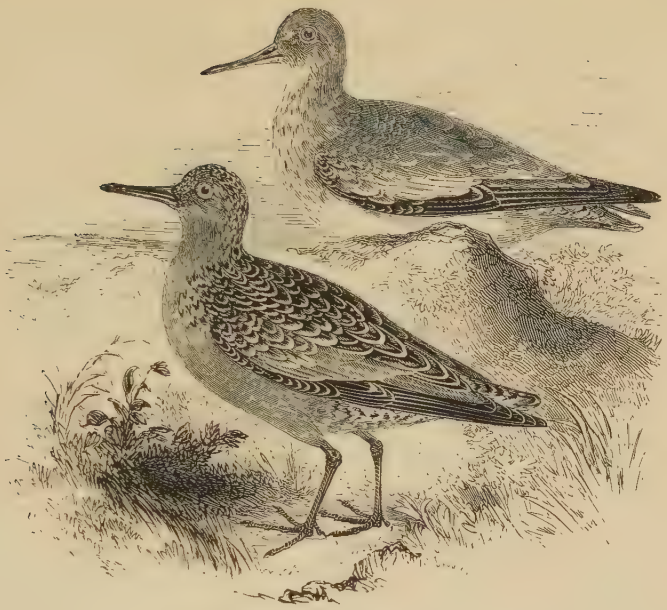
The Purple Sandpiper is widely distributed along the coast of Great Britain from September until the following spring, and exceptionally it has even been found inland; but its marked preference is for rocky shores on which large masses of sea-weed are exposed at low water. Young, scarcely able to fly, have been obtained on the Farne Islands, while adults have been observed in the Outer Hebrides and other northern localities as late as the middle of June; and there may be justification for the presumption that the bird has nested on the high ground in the Shetlands, though identified eggs have not yet been obtained. On the rugged portions of the Irish coast it is met with in winter, as well as in small flocks on the spring migration until far on in May.

This species breeds in considerable numbers no further off than the Færoes, especially on Sandoe; and in Iceland, Greenland, Spitsbergen, Franz Josef Land and Novaya Zemlya it is more or less plentiful. Owing to the influence of the Gulf Stream, it is resident or only partially migratory on the coast of Norway, and is even found on the shores of Sweden during winter, though not common at any season far up the Baltic; southward it can be traced on passage along the Atlantic sea-board down to Morocco; and there is a surmise that it may nest high up in the mountains on some of the Azores, as Mr. Godman shot a male in full summer-plumage in June on Flores. In the Mediterranean it is of unusual occurrence, while M. Alléon did not meet with it on the Black Sea. To the east of Novaya Zemlya the low tundras of Arctic Siberia are

unsuited to its habits, and it is rare or very local until Bering Strait is reached. American ornithologists consider that the birds found in that region—inclusive of Alaska—belong to a distinct species, *T. couesi*, while a supposed third, *T. ptilocnemis*, is almost restricted to the Pribilof Islands. The range in western Arctic America cannot, therefore, be defined with certainty, but our bird undoubtedly breeds in the north-eastern portion, migrating in winter to the Great Lakes and the Middle States, and, exceptionally, to the Bermudas.

In the circumpolar regions nests are frequently placed close to the sea-shore; but in the Færoes they were found by Wolley—and afterwards by Col. Feilden—on the fells; one being taken by the latter on May 20th, when deep snow was still lying in the sheltered spots and the tops of the hills were white. In Northern Iceland, also, the Rev. H. H. Slater shot a brooding female at nearly 1,600 ft. above sea-level. The nest is sometimes placed in a rather deep depression in the ground, and is composed of grass, with a lining of dead leaves; the eggs, 4 in number, vary from pale green to olive or dull buff, with purplish under-shell markings and reddish-brown surface-blotches: measurements 1·45 by 1 in. Attendance on the brood and the larger share of the duties of incubation fall to the lot of the male. In summer the food consists chiefly of insects; while in winter the bird may be seen on the rocks, regardless of the drenching spray, searching for small crustaceans and molluscs among the sea-weed. The Purple Sandpiper swims well and voluntarily; while, owing to its tameness, few Sandpipers admit of closer observation. The note is a *weet-wit.*

The adult in summer has the upper parts dark brownish-grey; the feathers of the mantle nearly black, spotted with rufous and tipped with buffish-white; the 7th–9th secondaries chiefly white, and very conspicuous in flight; rump, tail-coverts, and central tail-feathers sooty-brown, the remaining tail-feathers being ash-brown; throat, neck and breast greyish, obscured with dusky-brown streaks; belly whiter, and the flanks spotted with dark brown; legs and feet ochreous-yellow, the hind-toe directed inwards. Length 8·75 in. (bill 1·1), wing 5 in.; females being rather larger than males. In the young bird the feathers of the mantle and breast have crescentic white edges, which wear off later. In winter the dull upper plumage has a purple gloss, and the breast is dark ash-brown with only faint striations or mottlings, while on the flanks the markings are bolder. The species may be easily recognized by its dark colour, short legs, and generally 'dumpy' appearance.



THE KNOT.

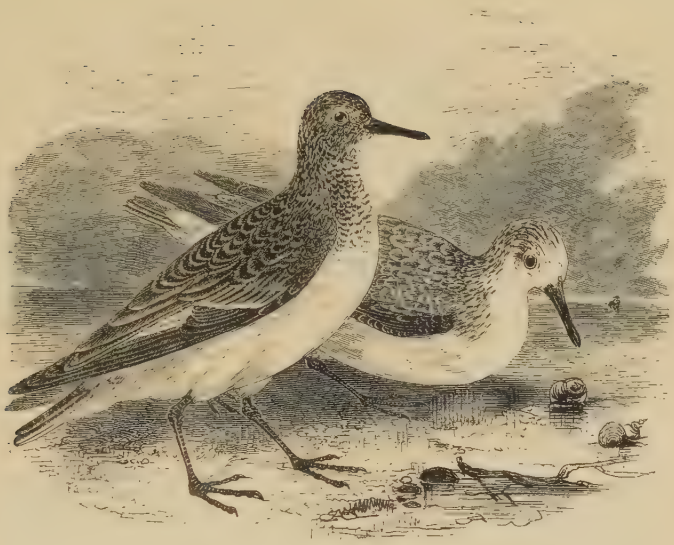
TRINGA CANÚTUS, Linnæus.

Camden (1607) connected with King Canute the trivial name of this species, and Drayton (1622) gave further currency to the fond idea; but the origin is probably to be sought in the call, *knut, knut.* The Knot has long been known as a regular visitor to the British coasts, and down to the end of the 17th century it was captured in nets and systematically fattened for the table. Flocks, mainly of young, make their appearance in mid-August, but the bulk of the adults arrive somewhat later, and large numbers remain with us until the following May; they are then joined by migrants which have developed in a higher degree the rich red tints of the nuptial-dress under the influence of a warmer climate, and eventually all, except the non-breeding birds, depart for the far north-west. Nowhere in Great Britain is the Knot more abundant than on the extensive sand-banks and mud-flats of the estuaries on the east, especially on the Humber; but in the Hebrides and down the west side of Scotland it is comparatively rare until the Solway is reached, whence it becomes plentiful in suitable situations down to Cornwall. Large numbers are found in Ireland during the colder months, and sometimes until late in spring.

To Iceland and the south of Greenland the Knot is a visitor on the way to its breeding-grounds, which appear to be chiefly in North Greenland and Arctic America. The earlier explorers found birds on Melville Peninsula, and abundantly on Melville Island, one of the North Georgian or Parry group; but no eggs are known to have been brought back. On July 30th 1876 Col. Feilden, naturalist to H.M.S. 'Alert,' obtained a male and three nestlings near a small lake on Grinnell Land in lat. 82° 33′ N., while Mr. Chichester Hart, naturalist to H.M.S. 'Discovery,' had captured a brood of four in lat. 81° 44′ on the 11th, and three more were taken next day: a beautiful group of the old and young being in the British Museum. A bird obtained by Gen. Greely near Discovery Harbour contained a hard-shelled egg; the Peary Expedition of 1892 found the species evidently breeding; and a female "with full-sized yolks" was shot at Point Barrow, Alaska, on July 11th. In Arctic Siberia the representative is *T. crassirostris*, which has a black breast in summer, and visits India in winter; though our bird occurs sparingly in China and Japan on migration, when it reaches Australia and New Zealand. It has not, however, been obtained on the Yenesei or even on the Petchora, though one was found by the Bremen Expedition among the eastern islands of the Spitsbergen group. On passage it swarms on the coasts of Western Europe, and passes down the west side of Africa to Damara-land; while in America it is well-known on the Atlantic sea-board, as well as on the Great Lakes and in the Mississippi Valley, and exceptionally visits Jamaica and Brazil.

There is a presumption that an egg in the Museum at Cambridge was laid by a Knot in the aviary of the late Lord Lilford. The birds observed by Col. Feilden on and after July 5th were feeding eagerly on the buds of *Saxifraga oppositifolia*, while the stomach of one killed at Discovery Bay contained two caterpillars, a bee, and pieces of an Alga; in this country small bivalves are freely eaten. The Knot is remarkably gregarious, and the young are very unsuspicious on their arrival. No wader strikes the lighthouses more frequently.

The adult in breeding-dress (in the foreground) has the head and hind-neck reddish-brown with darker streaks; feathers of the mantle blackish, spotted with chestnut and margined with white; tail-coverts white barred with black; cheeks, throat and breast chestnut; flanks and under tail-coverts whitish, mottled with black. Length 10 in. (bill 1·5), wing 6·5 in. In winter the upper parts are ash-grey, and the under-parts are white with grey flecks. In the young the feathers of the mantle have crescentic ash-coloured bars and dull white tips; under-parts with a buffish tinge; legs and feet dull olive.



THE SANDERLING.

Cálidris arenária (Linnæus).

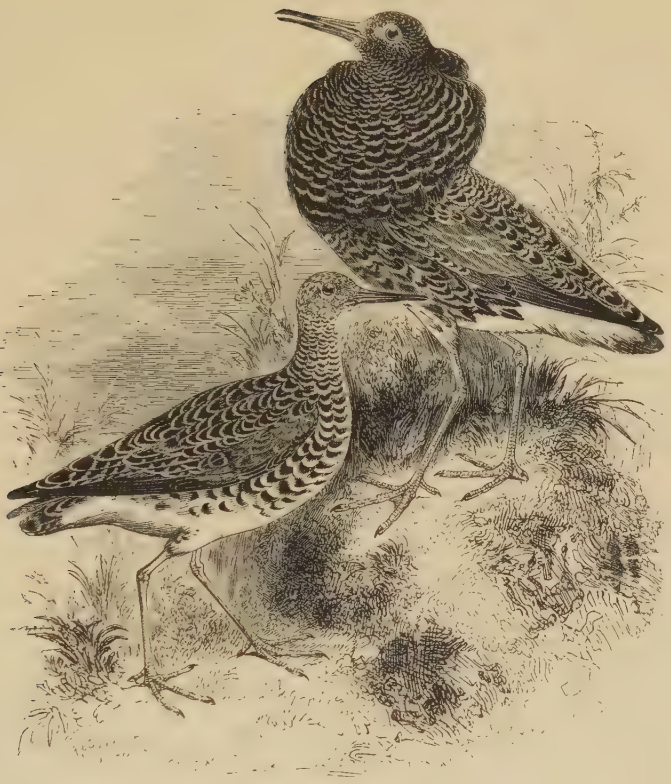
This species—easily recognisable by the absence of a hind-toe—usually arrives on the coasts of the United Kingdom by the middle of August, and the early flocks, though chiefly of young, often contain many older birds. Throughout the autumn the Sanderling is plentiful on the sandy portions of our shores, though less numerous on the mud-flats, while it occasionally visits large expanses of water inland; comparatively few, however, remain on any part of our coasts throughout the entire winter. By April the return passage—in smaller numbers—commences; birds in breeding-dress being observed through May and even in June.

To the Færoes the Sanderling is a somewhat rare migrant, but it seems to have nested in some districts of Iceland. Ten eggs were obtained by the German expedition of 1869-70 on Sabine Island, East Greenland; while on the west side nestlings have been captured near Godthaab, as well as in 81° 38′ N. by Dr. Bessels of the 'Polaris,' and the Peary Expedition found the bird breeding. On June 24th 1876 Col. Feilden shot a male from two eggs in lat. 82° 33′ on Smith Sound, where the bird was not uncommon; Sabine recorded it as breeding freely on the Parry Islands; and Mr. MacFarlane killed a

female from the first authenticated eggs, on the Barren grounds near the Anderson River; while westward, the species ranges to North Alaska. Following up its circumpolar distribution, the bird has been found on the Liákoff Islands, the Taimyr Peninsula, the Yenesei delta, New Siberia, Waigats, and several islands of the Spitsbergen group. Except in the Baltic, where it is scarce, the Sanderling is tolerably common on passage along the coasts of Europe and of the Atlantic Islands, and a certain number winter in the basin of the Mediterranean; others visit Cape Colony and Natal, the Persian Gulf, India to Ceylon, Java, Borneo, Australia, the Marshall and Hawaiian Islands, the Kurils, Japan and China. In America, south of its summer-haunts, it is found down to Patagonia and Chile.

The nest found by Col. Feilden was a depression in the centre of a recumbent plant of arctic-willow, on a gravel-ridge several hundred feet above the sea; the eggs were greenish-buff spotted with brown, resembling pale specimens of those of the Curlew in miniature: measurements 1·4 by 1 in. Like the Knot, this species was feeding at its breeding-grounds on the buds of *Saxifraga oppositifolia* and also on insects, but the stomachs of birds shot in this country generally contain slender sea-worms, small bivalves and crustaceans, with a little gravel. The fat on the body is sometimes nearly a quarter of an inch in thickness. The Sanderling is remarkably tame, and fairly sociable, consorting with Dunlins and other species which frequent sandy shores; it may, however, be easily recognized by the conspicuous whiteness of its under-parts. The note is a shrill *wick*.

The adult in summer-dress (represented in the foreground) has the feathers of the upper surface black or dark brown in their centres, edged or spotted with rufous and slightly tipped with grey; a good deal of white at the bases of the inner primaries and along the edges of the greater wing-coverts; central tail-coverts mottled like the back, but those on each side conspicuously white; face, neck and upper breast pale chestnut, spotted with dark brown; remaining under-parts pure white; bill black; legs and feet dark olive (black in winter). Length 8 in. (bill ·9), wing 4·7 in. The female is slightly larger than the male. By the latter part of August the rufous tints on the back have nearly disappeared, leaving the black markings very distinct; by the end of October the upper plumage is chiefly ash-grey and all the under surface is white. In the young bird the upper feathers are black, spotted with white, and variegated with pale buff, traces of the last colour appearing on the sides of the neck and breast.



THE RUFF.

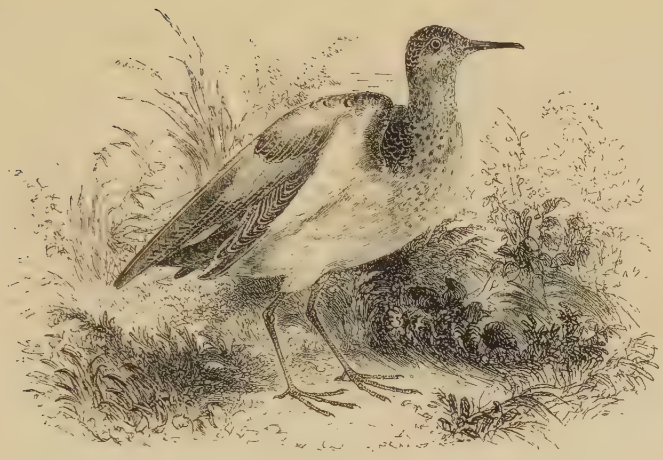
MACHÉTES PÚGNAX (Linnæus).

The Ruff and Reeve—the latter being the name applied to the female—used formerly to breed in many of the marshy districts of England ; but drainage has greatly restricted their haunts, while collectors have done their best to extirpate the birds which arrive in spring and attempt to nest. On the autumn migration the species is more abundant, and a few individuals are occasionally met with during the winter. In the west of England the Ruff is decidedly rarer than in the east, and it is seldom obtained in Wales. In Scotland it occurs from Berwickshire to the Orkneys and Shetlands, but has seldom been noticed in the Outer or Inner Hebrides. In Ireland it is of uncommon occurrence, and is usually seen in autumn, though occasionally in winter and spring.

As a straggler this species has been met with in the Færoes and Iceland, occasionally in Canada and the Eastern United States, once in Barbados, and once on the Upper Orinoco in South America. It breeds far north in Scandinavia, and in Russia up to Waigats Island, while southward, it nests in Poland, Germany, Holland, Belgium, and the north of France. On migration it is found over the rest of Europe, its winter-range commencing on the southern side of the Mediterranean, touching the Canaries and Madeira, and extending down both sides of Africa to Cape Colony. In Siberia the Ruff nests up to lat. 75° N., and during the cold season it visits Turkestan, India, Burma, and occasionally Borneo, China and Japan.

Ruffs are polygamous, and in spring they "hill"; that is, they assemble upon knolls of ground, where, erecting the long feathers, from which their name is derived, they spar, bill to bill—ostentatiously, but with little damage to themselves—for the females. The latter make their nests about the middle of May in tussocks of grass &c., on the drier part of swamps; the eggs, 4 in number, are greyish-green, blotched and spotted with reddish-brown: measurements 1·8 by 1·2 in. The males keep apart and appear to take no share in rearing the young, which are somewhat less able to take care of themselves than are the nestlings of most Waders; but in autumn flocks are formed, sometimes of very large numbers. The food usually consists of insects and their larvæ, worms &c., but seeds of aquatic plants, rice, and other vegetable substances are freely eaten, while in confinement the birds used to be fattened on boiled wheat or bread-and-milk. The note is a low *tu-whit, tu-whit.*

In spring the male sheds the feathers of the face, and caruncles take their place; curled tufts of feathers appear on the sides of the head; and by the beginning of May a shield-like erectile ruff is developed, which lasts through June. Every variety of purplish-black, chestnut, grey and white is shown on this ruff and also on the feathers of the back, each bird annually regaining the same colour. Length 12·5 in. (bill 1·5), wing 7·25 in.; ordinary weight 6 ozs., but of a fatted bird 10 ozs. After the moult the male resembles the female (in the foreground) in plumage, though he is about one-third larger; the neck and upper breast are buff, lower breast and belly dull white; primaries dusky-brown, feathers of the back dark brown with buff margins; the latter being especially conspicuous in young birds. Length of the female 10 in., wing barely 6 in. A white Reeve is in the Norwich Museum (J. H. Gurney).



THE BUFF-BREASTED SANDPIPER.

TRINGÍTES RUFÉSCENS (Vieillot).

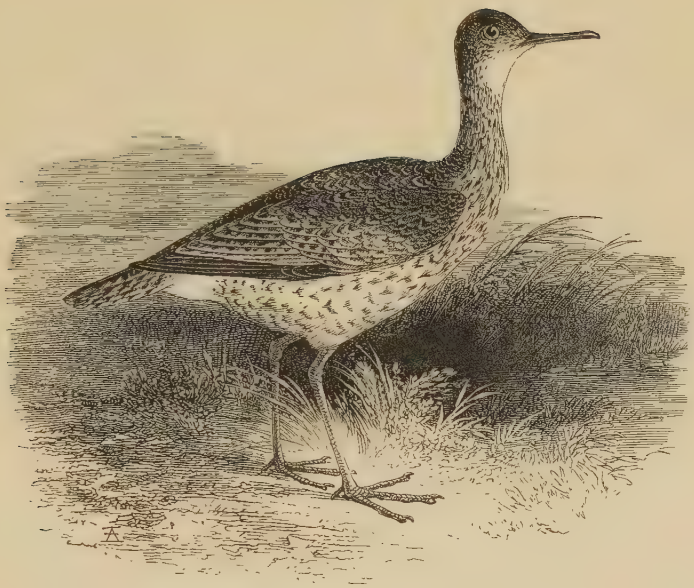
An example of this American species was shot near Melbourne in Cambridgeshire, when in company with some Dotterels, early in September 1826; while four others have subsequently been obtained in Norfolk, one in Sussex, four in Cornwall and the Scilly Islands, one at Lundy Island in the Bristol Channel, and one at Burgh marsh in Cumberland in September 1876. Almost all the above occurrences have been in autumn; but a male is said to have been killed at Formby, Lancashire, in May 1829. As regards a supposed Caithness specimen mentioned by R. Gray, Messrs. Harvie-Brown and Buckley merely remark that the species is on Dr. Sinclair's list. An example shot in the county is in the Dublin Museum, and two (one of which is now in the Belfast Museum) were killed in the People's Park of that city, in October 1864.

A bird obtained on Heligoland on May 9th 1847 is in the Gätke collection; and Drs. Fatio and Studer state that one has been procured on Lake Léman, in Switzerland. In summer the Buff-breasted Sandpiper inhabits the Arctic and sub-Arctic portions of the American continent. A female obtained by the late Dr. Rae on June 14th at Repulse Bay, in the south of Melville Peninsula, is in the British Museum, as are also examples from Fort Simpson; many sets of eggs were taken by Mr. MacFarlane on the Barren grounds of the Anderson River district, and Mr. Murdoch met with this species nesting plentifully at Point Barrow

in Northern Alaska, though on the Yukon and southwards to Sitka it appears to be uncommon. Mr. E. W. Nelson found it rather numerous on August 1st 1880 on the north coast of Siberia to the west of Koliuchin Bay, and says that the birds were evidently on their breeding-grounds there; while Middendorff has recorded an example from the Sea of Okhotsk, shot on June 30th. On migration it is found throughout the United States, though irregularly and rather sparsely in the north-east; becoming more plentiful in Louisiana, and southward to Mexico. It visits the Bermudas, Cuba, Barbados, Trinidad, and probably other islands in the West Indies, passing the winter in South America, down to Eastern Peru and Argentina.

Mr. Murdoch notes the arrival at Point Barrow as from June 6th to 8th; the birds frequented the drier portions of the tundras, and deposited their eggs, 4 in number, in a shallow depression lined with a little moss. When at Washington, I had the pleasure of inspecting the superb series obtained by Mr. MacFarlane, and certainly the eggs of few Waders present such beauty or variety; the prevailing ground-colour is pale buff or olive, the underlying markings are lavender-grey, and the blotches rich reddish-brown to black: measurements 1·45 by 1 in. Six examples are figured in Poynting's 'Eggs of Limicolæ.' As a rule the species is remarkably quiet, even at the season of courtship, though at times two males will meet and go through a performance of sparring or showing-off, while a solitary bird may often be seen walking about with one wing extended upwards in the air. Early in August the migration southward takes place; and as the food consists of beetles, grasshoppers and other insects, which are plentiful in autumn, the bird becomes remarkably fat and is much esteemed for the table. The note is a faint *tweet*.

The Buff-breasted Sandpiper may easily be recognized by the beautiful black marblings on both sides of the inner webs of the primaries and secondaries as well as on the under wing-coverts: these markings being much more pronounced in adults than in the young. The upper parts are buffish-brown mottled with black, a slight greenish tinge showing on the tips of the primaries and on the central tail-feathers, the other tail-feathers being barred towards the tips; under-parts rufous-buff, with a few black spots on the throat and sides of the breast; axillaries white. In the young the feathers of the upper parts are broadly edged with dull white, the under-parts are paler, and the spots are smaller. Length 8 in. (bill ·9), wing 5·25 in. Superficially the bird is not unlike a Ruff, though much smaller than even a Reeve.



BARTRAM'S SANDPIPER.

Bartrámia longicáuda (Bechstein).

The first authenticated occurrence of this larger wanderer from America was near Warwick at the end of October 1851. A second example (in the collection of Mr. J. H. Gurney) was killed in a ploughed field in Cambridgeshire on December 12th 1854; one, now in the Taunton Museum, appears to have been shot more than forty years ago on the banks of the Parret in Somersetshire; the late Dr. Bullmore had a Cornish specimen shot on November 13th 1865, and Dr. Leverton of Truro has another taken in October 1883; Mr. G. Bolam obtained one from the sea-banks of Northumberland on November 21st 1879; and a freshly-killed specimen, purchased in Leadenhall Market and said to come from Lincolnshire, was identified by Mr. Harting on October 27th 1880. The late Mr. A. G. More examined a bird said to have been sent to a Dublin game-dealer from Ballinasloe, co. Galway, in the autumn of 1855, and Mr. R. M. Barrington has a specimen shot near Bandon, co. Cork, on September 4th 1894.

There are several records of the visits of Bartram's Sandpiper to the Continent, but the only satisfactory instances are those of a bird killed in Liguria in 1859 (now in the Museo Civico at Genoa), and

another obtained at Malta on November 17th 1865 by Mr. C. A. Wright, who afterwards presented it to the Museum at Florence. In America this species breeds from Virginia northward to Nova Scotia, and even as far as Fort Yukon, Alaska; while it has been recorded from Colville Bay, British Columbia, though otherwise unknown to the west of 'the great divide.' In Canada it is particularly abundant on the plains of the Saskatchewan; and in the United States it is generally distributed from Pennsylvania and Illinois westward to the foot of the Rocky Mountains, though not very numerous nowadays (according to Mr. Cory) on the Atlantic coast. On the spring migration large flocks pass through Kansas, Nebraska, Minnesota and Dakota; while the return passage southward commences as early as July and continues during the autumn; extending to the Bermudas, the Southern States, Mexico and the West Indies, as well as through tropical America, to Argentina on the east side and Chile on the west.

Hilly grass-lands are the favourite haunts of this bird, for which reason it is known in the United States as the Upland-, Field- or Grass-Plover. The nest is a mere hollow—often in a ploughed field—with only a few grass stems or leaves to keep the eggs from the damp soil; these, 4 in number, and laid early in June, are pinkish clay-colour blotched with pale purple and umber-brown: measurements 1·8 by 1·35 in. Only one brood is reared in the year, and the young are somewhat helpless and clumsy. The note is a soft mellow whistle, whence the bird derives its Louisiana name of "Papabot." The food, which consists of beetles, grasshoppers and other insects, small snails, earth-worms &c., appears to be very fattening, and in autumn the bird is much prized by epicures.

The adult in summer has the crown blackish, with a median line of buff, feathers of the upper parts edged with warm buff, and thickly streaked and barred with black; inner web of 1st primary white, with conspicuous dusky bars; tail (long and wedge-shaped when closed) pale orange-buff barred with black and broadly tipped with white, except the central pair of feathers which are chiefly ash-brown; neck and breast buff, with blackish arrow-shaped markings on the lower breast; chin, belly and vent white; axillaries and under-wing barred with ash-brown and white. Length 11·5 in. (bill 1·2), wing 6·6 in. The female is slightly larger than the male. In winter the plumage has an ochraceous tint; while immature birds have the feathers of the back more margined with rufous-buff than the adults. It will be observed that the tail is barred as in *Totanus*, and is not plain as in *Tringa*.

THE COMMON SANDPIPER.

Tótanus hypoléucus (Linnæus).

This species, often called the Summer-Snipe, is a regular visitor to the British Islands, usually appearing in April and leaving again by the end of September, though a few birds occasionally remain till November. Inasmuch as its favourite haunts are the gravelly margins of lakes or islets of shingle in running water, this Sandpiper is chiefly a migrant in the south-east of England; but exceptionally it has nested in Lincolnshire, Norfolk, Buckinghamshire, Kent, Sussex, and Dorset, and more freely along the moorland brooks of Somerset, Devon and Cornwall. In Wales, and in fact west of the Severn and north of the Trent, it is a well-known breeding-bird; while in Scotland it is to be found on almost every loch and burn throughout the mainland, ranging to the Outer Hebrides, Orkneys and Shetlands. It is generally distributed in Ireland, except in the south-east.

In summer this Sandpiper is plentiful from the Arctic circle down to the Pyrenees, Alps, Carpathians, and the mountains of Turkey and Greece, while it visits Madeira, and breeds—sparingly—in the Canaries, Spain, and the Mediterranean basin. In the last, however, the species is better known in winter, at which season it ascends the Nile valley to Abyssinia, and can be traced along the entire coast-line of Africa, as well as to Madagascar &c. In Asia, where it is found from the Arctic circle southwards, it crosses the great

mountain barrier at an elevation of 17,000 ft. and breeds even in the Himalayas; its winter-range extending over the Indian, Malayan and Australian regions, down to Tasmania.

The nest, which is often a tolerably firm structure of grass, dry leaves, bits of rush &c., is either placed on banks more or less in the vicinity of fresh water, or on the shingle of some islet; but sometimes on the bare rock, and exceptionally in a pollard-willow (H. S. Davenport). The eggs, 4 in number, are usually reddish-buff, rather minutely spotted with two shades of brown, but occasionally the ground-colour is pale bluish: measurements 1·45 by 1 in. Incubation commences by the middle of May, but fresh eggs may be found nearly a month later; while every stratagem is used by the female to divert attention from her nest or young, though the latter can run as soon as they are hatched and show great aptitude in concealing themselves. When on the ground, this bird is in constant motion, flirting the tail up and down, or extending and withdrawing the head and neck; it often alights on fences and bushes, and swims and dives well. In spring it rises in the air, trilling a pleasing song, but the usual note is a piping *wheet*, *wheet*, *wheet*. The food consists of worms, insects and their larvæ.

The adult male in summer has the upper parts of a bronzy-brown, minutely flecked and barred with umber; the three outer pairs of tail-feathers broadly tipped with white and barred with black, the rest chiefly bronzy-brown; the chin white; sides of the neck and breast pale ash with dusky streaks; under-parts white. Length 8 in. (bill 1 in.), wing 4·25 in. The female is a trifle larger. After the autumn moult the upper parts are more uniform in colour. The young have the upper feathers margined with buff, and no dark streaks down the middle of the throat.

The American Spotted Sandpiper, *T. macularius*, was allowed to retain its place as a British bird in the 4th Ed. of 'Yarrell,' because, among the numerous recorded instances of its occurrence, there were two which could not with certainty be attributed to ignorance or deliberate fraud; but I think that the species has no claim to be considered as one of our visitors. Credulous collectors of "British-killed" specimens will do well to read the investigations of Mr. J. H. Gurney in his 'Rambles of a Naturalist,' p. 255, and in 'The Naturalist,' 1895, p. 311, or the exposure of a dealer's tricks in Adamson's 'Some more Scraps about Birds,' p. 256. The American bird has *all* the secondaries broadly barred with ash-brown, while in the Common Sandpiper the 8th and 9th are nearly white.

THE SPOTTED SANDPIPER.

TOTANUS MACULÁRIUS (Linnæus).

Since the Note on p. 606 was written, an example of this species upon which no doubt rests has been obtained in Ireland, and was exhibited by Mr. Frederick Curtis at a meeting of the British Ornithologists' Club on the 15th of February 1899. The bird, which proved to be a female on dissection, was shot on the 2nd of that month near Finea, co. Longford, by Mr. Frank Roberts of Windsor, and sent by him in the flesh to Mr. C. A. Veysey of Windsor, who, in his turn, is a personal friend of Mr. Curtis. The bird was very tame, and was feeding, when shot, in a meadow much trodden by cattle by the side of the river Finea, and within thirty yards of the village of the same name. There can now be no reason for refusing this species a place in the list of occasional visitors to the British Islands; and indeed the *probability* of its occurrence was never doubted, although the fact had not been satisfactorily established.

This American species has never been secured in Heligoland, and Dr. Anton Reichenow does not include it among the visitors to Germany, notwithstanding a French record of its acquisition on the 22nd of April 1875 at "Spire, Bavière rhénane." In North America to the south of the Arctic Circle this Sandpiper has a very extensive range, breeding from Labrador to Texas, and from the shores of the Atlantic to the mouth of the Yukon. It is found up to an elevation of 8,000 to 9,000 feet, and even to the shores of the

lakes near the end of the forest growth. In October it passes southward for the winter, when it visits the Bermudas, the Antilles, Central America, and South America down to the equatorial portions of Brazil. The return passage is in April.

The nest is a light structure of bents and grasses, and is usually placed in meadows, by the borders of streams or ponds. The eggs, 4 in number, are clay-colour or pale reddish-white, blotched with ash-grey and two shades of chocolate-brown, these markings being decidedly darker than in eggs of our Common Sandpiper: measurements 1·3 by ·95 in. The flight is rapid, performed with quick stiff beats of the wings, and the bird frequently utters its cry of *pēēt-wēēt* as it passes along; while its bowings and other attitudes when on shore are very comical. (D. G. Elliot.)

The adult in spring has the upper plumage very similar to that of our Common Sandpiper, but more strongly barred with dark brown, while the throat, and especially the breast, are thickly spotted with brownish-black; bill greenish-olive above and yellow beneath; legs and feet yellowish flesh-colour. The sexes are alike externally. Length 7 in., wing 4·2. In winter the upper plumage lacks the bronze tint of spring, and the under surface is nearly white, but the secondaries are very distinctively barred with brown.

THE WOOD-SANDPIPER.

TOTANUS GLÁREOLA (J. F. Gmelin).

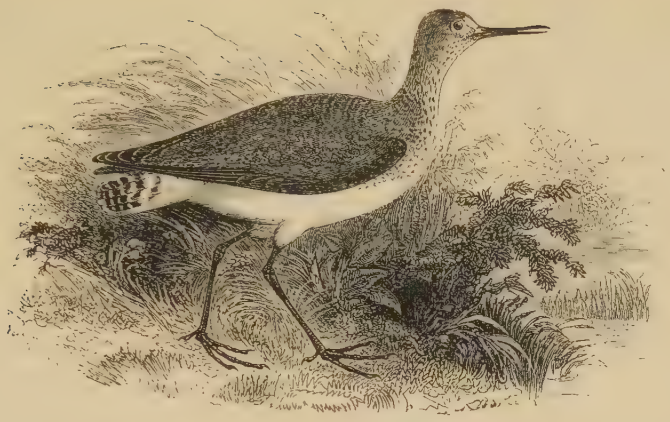
This bird is by no means so regular in its visits as the next species, with which it was formerly confounded, and the main body of migrants hardly reaches our shores. It is true that in autumn single individuals, or even small parties, usually of young, are met with on the east side of England, and in less numbers in the south, as well as in muddy situations far inland; while in Cornwall examples on the vernal passage have been noticed as early as April 15th. A few adults alight in East Anglia in spring, and a pair probably bred in Norfolk prior to 1846 (Zool. p. 1324); while on June 3rd 1853 Hancock obtained a male bird, nest and eggs, on the now drained Prestwick Car, in Northumberland. In Scotland the Wood-Sandpiper has been obtained in Mid- and East Lothian, and Aberdeenshire, and the late Mr. Bond received eggs which he considered to be well-authenticated from the vicinity of Elgin; while in the west, several occurrences in the area of the Clyde and Loch Lomond are substantiated. Along that side of England the bird is very rare, even in such congenial situations as the flat shores of the Solway and of Lancashire, and it has seldom been recorded from Wales. In Ireland, the first on record was shot in co. Wicklow, on August 23rd 1885; two birds (out of three) were killed on the same bog very early in August 1896; and lastly, Mr. W. Drury obtained one (which I have examined) near Lough Cullin, co. Mayo, on September 5th 1898.

The Wood-Sandpiper is only a wanderer to the Færoes, but on the mainland of Northern Europe it is common during the summer, breeding as far south as the valley of the Danube, and probably in some parts of North Italy; while on May 28th 1870 I shot a bird which had evidently been incubating, on the edge of a wooded marsh near Aranjuez in Central Spain. Over the rest of the Continent it is well known on passage; its migrations reaching to South Africa, India, Malayasia and Australia. In Asia its breeding-range stretches from the great mountain-ranges northward to the Taimyr, and eastward to Kamchatka.

In Europe the nest is usually concealed in some depression on tolerably dry ground, though not far from water, and usually amongst bog-myrtle, stunted heath, sedge, or other coarse vegetation; but on the Yenesei Mr. Popham found that, in four cases out of five, the eggs were laid in old nests of the Fieldfare. As this habit had previously been supposed to be peculiar to the Green Sandpiper, the sitting-birds (all males) were shot. The eggs, 4 in number, are often pale green in ground-colour, though sometimes buffish-white, and are speckled and blotched with reddish-brown, especially at the broader end: measurements 1·5 by 1 in. Incubation begins about the middle of May in Holland, though later in the north; the male indulging in 'play' similar to that of the Common Sandpiper during courtship, and uttering a tremulous note, *leero*, *leero*; but the cry of alarm is a sharp *giff*, *giff*. This bird perches on bushes, trees or stakes even more often than its predecessor. It feeds on worms, small molluscs, insects and their larvæ, and a disagreeable musky odour usually pervades its flesh.

This species is rather smaller than the Green Sandpiper, but with a proportionately longer tarsus; and it has the upper parts streaked with olive-brown, the margin of each feather of the mantle showing buffish-white spots (elongated and well defined in the young, smaller and triangular in the adult); the quills are dusky, but the *outer one* has a *white shaft* (not dusky as in the Green Sandpiper); upper tail-coverts white with narrow dark shaft-flecks; outer tail-feathers white, with bars on both webs in the young and on the outer web only in the adult, the remaining feathers being distinctly barred; neck, throat and breast dull white, thickly streaked with ash-brown, the flanks being barred with the same colour; *axillaries white*, merely *flecked* with *brown*; abdomen white; legs and feet yellowish-olive. Length 8·5 in. (bill 1·1), wing 5 in.

Illustrations of the characteristic axillaries and tail-feathers of this and of the Green Sandpiper are given on p. 612.



THE GREEN SANDPIPER.

TOTANUS ÓCHROPUS (Linnæus).

The Green Sandpiper is not uncommon on the spring as well as on the autumnal migration in many parts of England and Wales, while it is sometimes met with in the depth of severe winters, and continues in good condition when Snipes are lean. From some of our streams it is, indeed, seldom absent, except during June and July; and even in those months single birds, pairs, or small parties have been noticed in Sussex, Norfolk, Suffolk, Yorkshire, Breconshire and other counties; indeed there is a possibility, though as yet no proof, that it may occasionally breed with us. On the east side of Scotland it is of fairly frequent occurrence, but in the north it is very rare, while its presence in the island-groups has not yet been recorded, and it is seldom met with on the west coast, except in the Solway district. To Ireland its visits are not uncommon in autumn and are fairly frequent in winter.

This Sandpiper is found nesting in marshy woods, from the vicinity of the Arctic circle southward to Central Russia, Poland and Germany, and as far west as Holstein. Over the rest of the Continent it is well known as a migrant, and I have an adult female from Málaga, in the south of Spain, shot as late as June 24th. From autumn to spring it is abundant in suitable localities from Morocco to Egypt; and, though not traced beyond Angola on the west side of Africa, it ascends the Nile valley to Abyssinia, continuing its course through the Lake district to Cape Colony. In summer it is found in Asia from the Arctic circle to the great

mountain ranges, while from July onwards it visits the rest of that continent and the Malay Archipelago. There are two specimens in the British Museum labelled respectively "Hudson Bay" and "Halifax, Nova Scotia."

The remarkable nesting-habits of the Green Sandpiper were first brought before the notice of the majority of British readers by Prof. Newton (P. Z. S. 1863, pp. 529–532); but an intimation of the bird's preference for trees had been given in 'Naumannia' for 1851–52, and Forester Hinz had communicated full details (J. f. O. 1862, p. 460) respecting its nidification, observed in Pomerania from 1818 onward. As already stated, the Wood-Sandpiper shows a similar taste in Siberia. The eggs, sometimes laid as early as April 16th, have often been found in old squirrels' dreys, or the nests of Song- and Mistle-Thrushes, Blackbirds, Jays and Ring-Doves; occasionally on the ground, or on moss-covered stumps, broken-down trees, and spines heaped upon branches of firs—at elevations reaching to 35 feet, but always in proximity to pools. The eggs are pale greenish-grey, with small purplish-brown spots, and are normally 4 in number; though, as is the case with some other waders, 7 have been found together, doubtless the produce of two females: measurements 1·55 by 1·1 in. The Green Sandpiper frequents woodland streams and ponds, peaty swamps and meadow-drains, rather than the vicinity of the sea, while it is generally observed alone or in pairs, and at most in family parties. It is an extremely wary bird, and frequently shifts its feeding-grounds for no assignable reason. The flight is rapid and glancing; the note is a shrill *tui-tui-tui*. The food consists chiefly of insects, small red worms and fresh-water snails; the flesh has a disagreeable musky odour, like that of the preceding species.

The adult is larger than the Wood-Sandpiper, and is rather greener in tint, with fewer spots on the upper parts, and with whiter upper tail-coverts which are very conspicuous in flight; belly and under tail-coverts pure white. The central tail-feathers have broad black bars, and the axillaries are brownish-black, with narrow angular bars of white: distinctive characters which are figured on p. 612. Length 9·5 in.; wing 5·5 in. The young show less of the metallic-green sheen on the upper parts, while the spots are less plentiful and not so purely white.

The Green Sandpiper has only one large notch on each side of the posterior margin of the sternum, and was therefore placed in a separate genus, *Helodromas*, by Kaup, who further created *Rhyacophilus* for the Wood-Sandpiper.

THE SOLITARY SANDPIPER.

Totanus solitárius (Wilson).

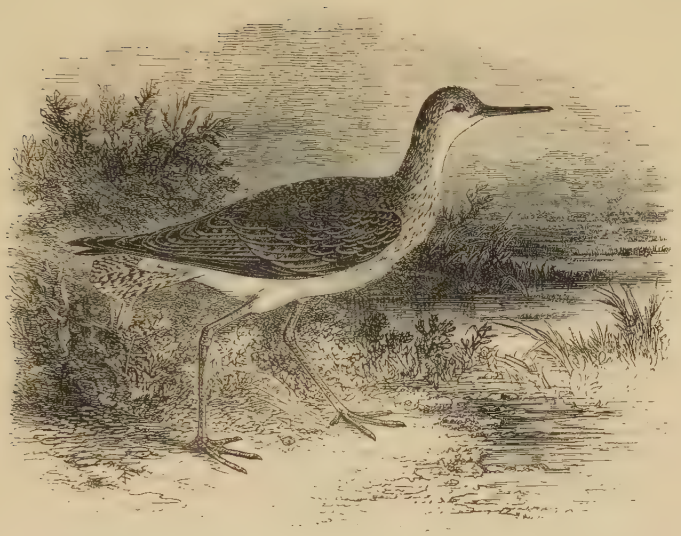
A specimen of this American species was recorded by Robert Gray in 'The Ibis' for 1870 (p. 292), as having been killed some years previously on the banks of the Clyde. In 'The Zoologist' for 1882 (p. 432), Mr. T. Cornish stated that on September 21st of that year, an example, now in the collection of Mr. Dorrien Smith, was shot in the Scilly Islands; and he subsequently identified another (Zool. 1885, p. 113) which was obtained in a marsh near Marazion in Cornwall in October 1884, according to the sale-catalogue of Vingoe's collection (May 13th 1889). These have been identified by competent authorities.

In America the "Wood-Tattler," as the bird is often called, appears to be generally distributed during the breeding-season from the vicinity of the Arctic circle to about lat. 44° N., and from the Atlantic to the Lower Yukon in Alaska. Many ornithologists have observed it in summer, and Mr. Nelson has taken the young when just able to fly in Illinois; yet nothing appears to be known of its nidification, for the description given by the late Dr. Brewer of an egg taken in Vermont and ascribed to this species indicates a probability of error; while the story in 'The Auk,' 1898, p. 328, of the bird being flushed (but not obtained) near Lake Ontario, from 5 eggs "with grotesque brown figurings somewhat similar in shape to those found on the eggs of the Purple Grackle," can hardly be considered conclusive. The spring arrival of the Solitary Sandpiper in the United States takes place in May, while the return passage begins in July in the northern districts, and even in the south few birds remain after October. On migration South Greenland, the Bermudas, the Antilles, Mexico, Central America, Brazil, Paraguay, Argentina and Eastern Peru are visited.

The Solitary Sandpiper is so named because it is generally found alone or in pairs on its journeys, when it is not infrequent by pools and rivulets; but for a short time after the young are hatched small family parties are formed. During the summer the bird appears to be partial to small ponds surrounded by dense forest, and it then resorts to decayed logs for the larvæ of insects, but at other times it probes the soft mud for worms and minute crustaceans. The note is a sharp whistle.

This species is about the same size as the Wood-Sandpiper, but its upper parts are even less spotted than those of the Green Sandpiper; the tail-coverts and central pair of rectrices are chiefly olive-brown, with only minute flecks of white, while all the remaining tail-feathers are boldly barred with black and white on both webs; the head, neck and under-parts are much the same as in the Common Sandpiper; the axillaries are barred angularly with black and white in nearly equal proportions. Length 8·25 in.; wing 5·2 in. Its nearest ally is our Green Sandpiper, and, like that species, it has only one large notch on each side of the posterior margin of the sternum. An illustration is not considered necessary, inasmuch as the distinctive characteristics could hardly be shown therein.

In the following vignette the upper figures represent, respectively, a feather from the axillaries and one from the middle of the tail of the Wood-Sandpiper, while below them are corresponding feathers from the Green Sandpiper. The axillaries of the Solitary Sandpiper resemble those of the Green Sandpiper in pattern, but the white bars are much broader.



THE YELLOWSHANK.

TOTANUS FLÁVIPES (J. F. Gmelin).

This is another of those American species which occasionally find their way to this side of the Atlantic. The first British-killed example on record was obtained at Misson in Nottinghamshire, by some wild-fowlers who used to send their birds to Doncaster, and thus reached Hugh Reid, the well-known taxidermist. It was next sold to Sir W. M. E. Milner, who brought it to London in the spring of 1855, to be used by Yarrell in his 'History of British Birds,' and it forms the subject of the present illustration; it is now in the Leeds Museum. A second genuine specimen was shot by E. Vingoe on September 12th 1871, on a salt-marsh near Marazion in Cornwall, as stated by Rodd (Zool. s.s. p. 2807) with ample diagnosis and details.

As a straggler the Yellowshank has occurred in South Greenland; but its breeding-grounds are in North America from Hudson Bay to Alaska, extending as far south as Lake Superior, and perhaps to the vicinity of Chicago, where Mr. Nelson found the young barely able to fly on July 1st 1874. On passage this species is generally distributed throughout the greater part of the United States, and is abundant along the valley of the Mississippi, though of comparatively rare

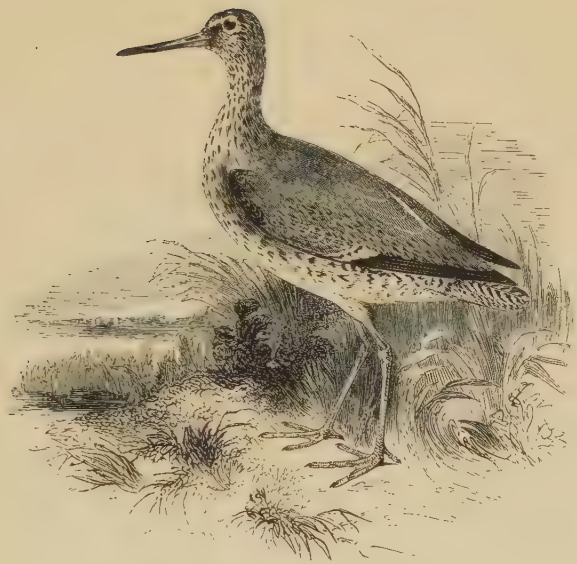
occurrence to the west of the Rocky Mountains. It visits the Bermudas, Bahamas, and West Indies generally, as well as the mainland of tropical America, wintering as far south as the Chupat valley in Patagonia—where Durnford found it common during November—and also in Chile.

According to Messrs. Kennicott, MacFarlane and others, the nest is a simple depression scantily lined with dead leaves &c., near the edge of a marsh or pool. The eggs are 4 in number, and those which I examined in the Smithsonian Institution at Washington were creamy-buff, boldly blotched with chocolate-brown and umber: measurements 1·65 by 1·1 in. Six examples are figured in Poynting's 'Eggs of the Limicolæ.' The food consists of insects and their larvæ, small crustaceans, worms &c.; and in its general habits this species resembles other Sandpipers.

The adult in summer has the crown and nape greyish-white streaked with black; mantle ash-brown with ragged blotches of black which have a tendency to form regular transverse bars on the scapulars and secondaries; upper tail-coverts pure white with dusky bars; tail-feathers white, with numerous ash-coloured bands—broadest on the central pairs—across both webs; chin and neck white, the latter thickly streaked with wood-brown; under-parts white; *axillaries* white, *barred with ash-brown*; bill black and very slender; legs and feet bright yellow. Length 10·75 in.; wing 6·4 in. In autumn the streaks are almost absent from the head, neck and throat. The young resemble the adults in winter-plumage, but are more or less tinged with pale brown on the upper parts.

As the immature Redshank, which has pale yellow legs, has several times been mistaken for the Yellowshank, it may be pointed out that *T. flavipes* has a much more slender bill, a longer tarsus, and distinctly barred axillaries.

On May 13th 1889 Vingoe's collection was sold at Stevens' auction-rooms, when the specimen of the Yellowshank from Marazion obtained the price of £5. 15*s*. 6*d*., and the Solitary Sandpiper mentioned on p. 611 went for £14. 14*s*.



THE COMMON REDSHANK.

TOTANUS CÁLIDRIS (Linnæus).

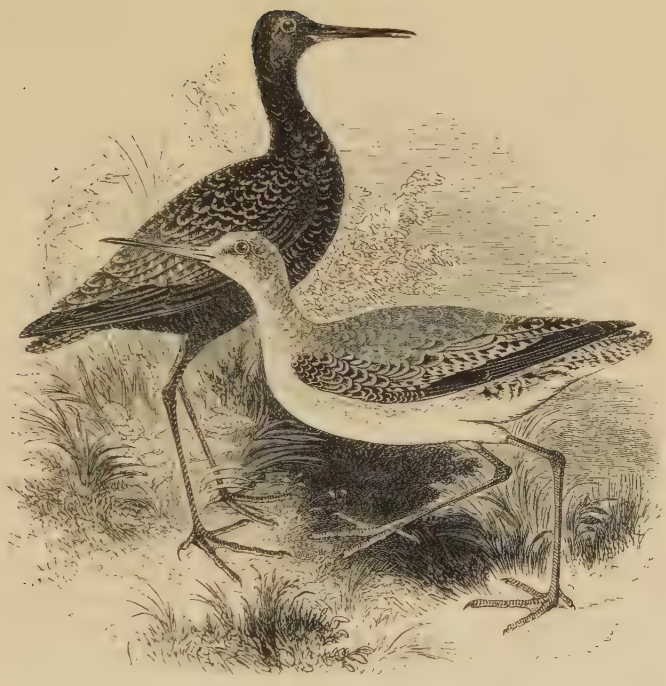
In spite of drainage the Redshank may be found nesting in most of the marshy districts of England and, sparsely, in Wales; usually making its appearance inland from the middle of March onwards. Early in autumn home-bred birds begin to resort to the coast, where they are joined by large numbers from the Continent; but on the approach of cold weather the majority pass southward, though in some places birds may be found throughout the winter. On the mainland of Scotland the species is abundant, but in the Orkneys and Shetlands it does not breed plentifully, while in most of the Outer Hebrides it is chiefly an autumnal visitor. In Ireland it is fairly numerous during the summer, while plentiful at other times of the year along the sea-board, especially on the bays of the west, where large expanses covered with *Zostera marina* are left exposed by the receding tide.

This species breeds in Iceland, the Færoes, Scandinavia up to lat. 70° N., and as far north as Sviatoi-noss in Russian Lapland; south of which it is found nesting in suitable localities throughout Europe, as well as in Morocco. It visits the Canaries, and migrates down the west side of Africa to Cape Colony, while on the east it can be traced to Natal. In Asia it barely ranges north of lat. 55°,

and it is very local in Siberia, though more widely distributed during the summer over the elevated table-lands from Persia to Mongolia; on passage it occurs in Japan, China, the Philippines, Borneo and Java, and it is plentiful in the Indian region during the cold season.

The Redshank frequently breeds in small communities, and in marsh-land or pastures the nest is usually in the centre of a tuft of rushes or of long grass, the entwined blades of which conceal the contents from view; but in many places the nest is as exposed as that of a Lapwing or of a Golden Plover. The 4 eggs are of a yellowish stone-colour blotched with purplish-brown, and measure 1·75 by 1·2 in. In the south they are often laid during the first week in April, but they may be found fresh until the middle of May, or later in the north; incubation lasting twenty-two days (W. Evans). When the nest is approached the bird is very noisy and practises many artifices to allure the intruder from the neighbourhood; while at other times it causes annoyance to sportsmen by flying round and alarming everything by its shrill note, which has obtained for it the local name of *took* in East Anglia and *tolk* in Scandinavia. In spring the male may often be seen uttering a peculiar love-song while running along the top of a gate or fence, pirouetting and bowing to his partner like an amorous pigeon. Occasionally the bird perches on trees; it dives when wounded; and it has been seen swimming to shallow water on the other side of a creek rather than take wing. Its flight is quick though somewhat wavering, the white band on the extended wing being very conspicuous. The food consists of aquatic insects, worms, crustaceans, and small molluscs. During seven or eight months of the year this species frequents the margins of salt or brackish waters.

The adult male in summer has the upper parts buffish-brown, profusely streaked and barred with umber; secondaries nearly white; rump white with a few dusky flecks; tail-feathers white, thickly barred with blackish, and with a tinge of pale brown on the central pairs; under-parts white, streaked on the neck, breast and belly and barred on the flanks and axillaries with ash-brown; bill black anteriorly, basal half red; legs and feet bright orange-red. Length 11 in. (bill 1·8), wing 6·25, tarsus 1·9 in. The female is rather larger and more rufous on the mantle. In winter the bird has the upper parts ash-colour, the rump white, and the under-parts nearly so, with a few ashy streaks and spots on the neck and breast; axillaries pure white. In the young the legs are yellow, the feathers of the mantle are edged with rufous-brown, and the belly is unspotted.



THE SPOTTED REDSHANK.

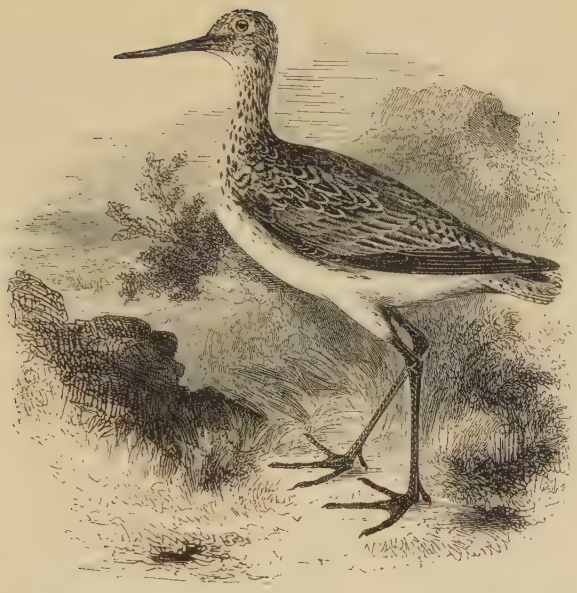
TOTANUS FÚSCUS (Linnæus).

The Spotted or Dusky Redshank is of somewhat irregular—though not altogether infrequent—occurrence in Norfolk and other eastern counties on the autumn migration, while birds assuming the breeding-dress are still more common there in spring. Being partial to fresh or slightly brackish water, this species cannot endure frost, and leaves before winter begins. Even in Cornwall, Wales, Lancashire and the Lake district it is seldom met with; and though found occasionally as far inland as Nottinghamshire, it is little known to the north of the Humber. It has, however, occurred in Haddingtonshire, Aberdeenshire and Banffshire; Mr. Harvie-Brown has identified a bird shot on the Findhorn; Mr. Buckley admits a record from Sanday, Orkneys, in 1849; and Mr. Service is aware of an occurrence on the Scottish side of the Solway. In Ireland one has been obtained near Belfast; Mr. R. Warren has killed two and has seen a few others on the Moy estuary in autumn, and even in winter, between 1867 and 1888; while of late years the bird has been met with on several occasions along the coast of co. Dublin.

In summer this species inhabits the northern portions of Scandinavia and Russia; the birds which intend to nest there arriving in May, though migrants have been noticed passing northwards over Heligoland as late as June 17th. It crosses the Continent by several routes to the basin of the Mediterranean, whence its winter quarters extend to Cape Colony. In Asia, it is irregularly distributed across Siberia to Kamchatka and the Commander Islands; while in our cold season it visits Japan, China, Burma and South India (sparingly), and North India (freely).

For details respecting the nidification British ornithologists are indebted to Wolley, who observed the Spotted Redshank in Finland in 1854. It appears to choose rather dry situations, such as the tops of long hills covered with scattered timber and often where the forest has been burned, many hundreds of yards from any marsh; and there, towards the end of May, in some slight depression, it deposits its 4 eggs, which vary in ground-colour from a yellowish-olive to a beautiful sea-green, and are blotched with several shades of brown and black: measurements 1·85 by 1·25 in. The bird sits very closely, its white lower back being conspicuous as it crouches with its neck drawn in; on rising it flies round with an occasional *tjeuty*, or stands upon the top of a neighbouring tree, showing the full length of its slender legs, neck and bill. It becomes very demonstrative when the young are hatched, and probably carries them down to the marsh, as they are found there while still small. The food consists of worms, beetles and other insects, univalves &c.; chiefly obtained near fresh water, to which, as already observed, this species is far more partial than the Common Redshank.

The adult male in summer (figured in the background) has the general plumage of a sooty-black hue faintly spotted with white; rump and upper tail-coverts white, closely barred with black; tail-feathers more thickly barred on a dusky ground; bill nearly black, red at the base of the lower mandible; legs and feet claret-red at the joints, but mainly livid. Length 13 in. (bill 2·35), wing 6·25, tarsus 2·2 in. The female is rather larger and often has a white chin, the under-parts being paler and more mottled. After the autumn moult the upper parts are chiefly ash-grey, more mottled with white than in the Common Redshank, while the tail-feathers are much darker; the secondaries are thickly barred with dusky on both webs; the neck is ash-coloured, the under-parts are dull white, and the axillaries white. The young bird has the upper surface tinged with brown, the under-parts clouded with ash-grey, and the legs orange-yellow.



THE GREENSHANK.

TOTANUS CANÉSCENS (J. F. Gmelin).

The Greenshank occurs annually, though in small numbers, on the shores and many of the inland waters of Great Britain during the spring and autumn migrations, but it is not very often met with in December or January. In Ireland, however, it remains through the winter (especially in cos. Mayo and Cork), until the spring, after which its absence is very brief, inasmuch as some birds appear again early in July, while the majority have arrived by the end of that month (R. Warren). In Scotland it was discovered nesting by Macgillivray in the Outer Hebrides, where a few pairs are still to be found, as they are in Skye and some of the Inner islands ; but on the mainland its breeding-range is increasing, especially in the Moray area, and extends over portions of Caithness, Sutherland, Ross, Inverness, Argyll, and the north of Perthshire, while Mr. Service thinks that a few pairs inhabit the Galloway hills. The Greenshank has never been known to breed in the Orkneys, and Saxby's statements respecting the finding of its eggs in Shetland remain uncorroborated.

This species is a regular summer-visitor to the fells and morasses of Scandinavia, Northern Russia, and Siberia up to about lat. 60° N.

as far as the Stanowoi Mountains; while in winter it ranges over the greater part of the eastern hemisphere down to the Australian region. On May 28th 1832 Audubon obtained three specimens in Florida, but since that date the bird has not been noticed in North America, though examples ascribed to Buenos Aires and Chile are in the Leiden Museum. The Greenshank is well known on the coasts and inland waters of Europe, especially on the autumnal passage, and considerable numbers go no further in winter than the basin of the Mediterranean and the Canaries.

The nest is often at some distance from water, or even on dry ground among scattered pine-trees, but in Scotland it is generally near the edge of a loch or other fresh water. Mr. Buckley mentions finding three eggs between two stones on May 24th 1869, and on passing the spot on May 26th 1871 a bird was sitting closely between the same two stones and did not move until touched with the point of a fishing-rod. The eggs, normally 4 in number, are of a warm stone-colour, with blotches of purplish-grey and spots of rich brown: measurements 1·9 by 1·3 in. The male takes a large share in the duties of incubation. When its haunts are approached, and especially after the young are hatched, the Greenshank is very vociferous, uttering a loud *chee-weet, chee-weet*, and swooping round the head of the intruder; at other times it has a strong, rapid flight, and, like other Sandpipers, it perches on trees. It feeds on small fish and spawn, crustaceans, molluscs, worms, beetles &c., often searching for the last in meadows frequented by cattle.

The adult male in summer has the head and neck greyish-white streaked with blackish-brown; feathers of the mantle and secondaries nearly black, edged with pale grey; rump white; tail-feathers white, mottled and barred with brown; under-parts white, with ash-brown streaks and spots on the throat, breast and flanks; bill slightly upcurved and blackish; legs and feet olivaceous. Length 14 in. (bill 2·25), wing 7·25, tarsus 2·25 in. In winter the upper parts are greyer and the under surface is pure white. The immature bird has tawny margins to the dorsal feathers, while the chest and flanks are minutely pencilled with blackish-grey; tarsi greenish, bluer at the joints.

It is asserted in Littleboy's 'Birds of Hertfordshire' that a Marsh-Sandpiper, *T. stagnatilis*, was shot near Tring Reservoirs in October 1887, but the bird was not submitted to competent authorities at the time, and has since been burned. This Greenshank in miniature has been known to visit Heligoland and Northern France.

THE RED-BREASTED SNIPE.

MACRORHÁMPHUS GRÍSEUS (J. F. Gmelin).

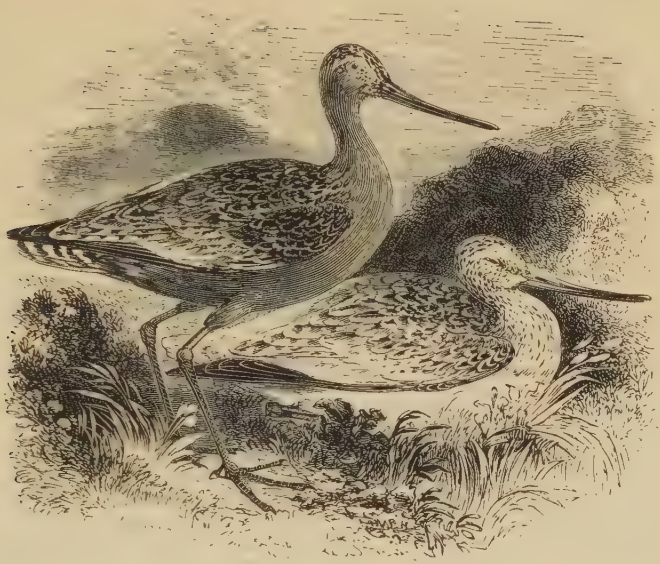
The trivial name of this American species is somewhat unfortunate, for the bird does not belong to the Sub-family Scolopacinæ, but to the Totaninæ, among which it now finds its proper place. Its occurrence in Great Britain was first noticed by Montagu, who described and figured—under the name of Brown Snipe—a bird which was killed in Devon in October of a year prior to 1802, and now in the British Museum. Two or three more specimens are said to have been procured in the above county, and one has been shot in the Scilly Islands; Middlesex has produced two, Norfolk three, Lincolnshire one (on August 15th 1882), Lancashire one (now in the Preston Museum), and another in September 1891; while on the Cumberland side of the Solway a young bird, afterwards in Heysham's collection, was taken on September 25th 1835. All these were obtained in autumn. In Scotland, a young bird (now in the Edinburgh Museum), was shot near Largo, Fifeshire, in September 1867; a correctly identified example is said to have been killed in Lanarkshire; and on September 2nd 1891 one was obtained in Argyll. In Ireland, in 1893, an immature female was shot on September 29th in Queen's County, and an adult female on October 11th in co. Tipperary.

On the mainland of Europe the Red-breasted Snipe has been found in Denmark, Picardy and Normandy; while on the other side

of the Atlantic it is of rare occurrence in the South of Greenland. It breeds on the vast morasses round Hudson Bay, and about as far south as lat. 44° N., migrating along the east coast; but west of the Mississippi valley a slightly larger form prevails, with somewhat longer bill and brighter coloration in summer, and for this American ornithologists have adopted the name *scolopaceus*. Both forms occur in winter in the Gulf States and among the West Indian Islands, while it is admitted that birds undistinguishable from those of the Atlantic race occur on the Barren grounds and in Alaska—the summer-quarters of the western form—as well as down the Pacific side of America. For the purposes of the present work we may unite the two under one heading, and say that the Red-breasted Snipe breeds throughout the Fur countries, migrating in winter as far south as Brazil on the east side and Chile on the west, while a few wanderers cross the Pacific to Japan and North-eastern Siberia. On Long Island, near New York—where the bird is known by the name of "Dowitcher"—it arrives towards the end of April, and within a month the most northern of its breeding-grounds have been reached.

According to Messrs. Dall, MacFarlane, Nelson, and others, the 4 eggs are laid in June in some slight hollow in a tussock near a lake or marsh-pool; their colour is greenish-grey or brownish-olive, blotched with dark umber: measurements 1·75 by 1·22 in. The young are on the wing by the end of July, and early in August the adults begin to lose their red breeding-plumage, while by September they have assumed their grey winter-garb, and have formed large flocks. Owing to its tameness this species affords no sport, and if disturbed merely utters a short *weet* on taking flight, soon settling down again by the side of the water, in which it seeks the small insects, worms and marine bivalves which constitute its food.

The adult male in summer has the crown blackish, mottled with tawny-brown; feathers of the mantle blackish, with fulvous edgings; shaft of the first quill pure white; upper tail-coverts and tail barred with black on white and rufous; under-parts ruddy-brown, with a few spots on the throat and breast; axillaries and under wing-coverts white, barred or mottled with dull black; bill dark olive; legs and feet pale olive. Length of the male 10 in. (bill 2·2), wing 5·5 in. The female is larger but alike in plumage. In winter the general plumage is grey, and, except for its size and length of bill, the bird then superficially resembles a Dunlin in the dress of that season. The young bird is much greyer than the adult, and only the margins of the feathers of the mantle are rufous.



THE BAR-TAILED GODWIT.

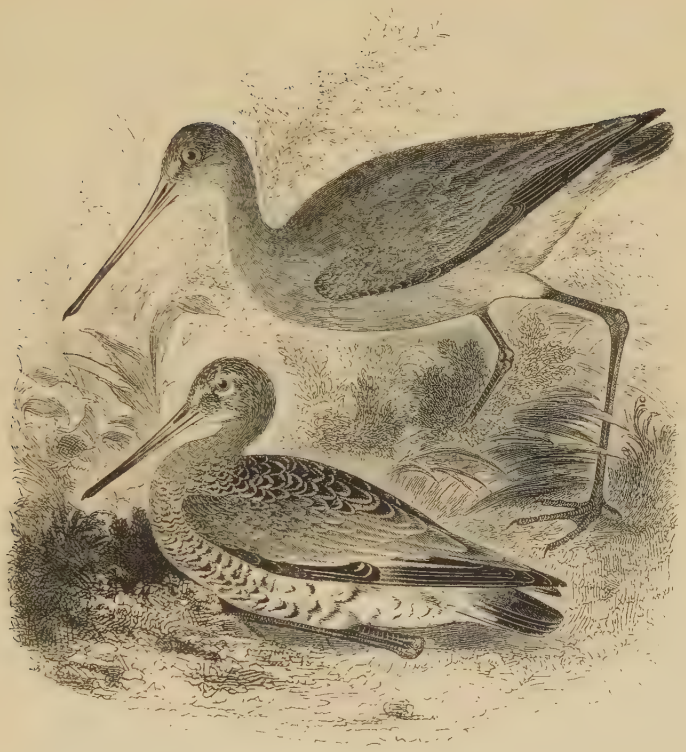
LIMÓSA LAPPÓNICA (Linnæus).

The Bar-tailed Godwit is a regular visitor to our estuaries, sand-banks and mud-flats in spring and autumn; young buff-breasted birds, which are at first very tame, often beginning to arrive in August. Mr. W. Evans informs me that in the Firth of Forth from 300 to 500 pass the winter, while Mr. Abel Chapman and Mr. G. Bolam agree that far more resort to the coast of Northumberland; but in Lincolnshire, Norfolk, and southward to the Channel, comparatively few are then to be met with. On the other hand, numbers in red breeding-plumage visit the south and east coasts on the spring migration, and in Norfolk, from the date of their arrival, the 12th of May used to be called by the Breydon gunners "Godwit-day." In Wales and the west of England this species is chiefly seen in autumn and winter; and the same may be said of that side of Scotland, where, however, flocks of non-breeding birds frequent the Sound of Harris, and also the Solway, in summer. In the Orkneys this Godwit is rare. In Ireland it is tolerably common during autumn, though less plentiful in winter; but many arrive on the west coast in March, and increase in abundance up to April, while numbers remain till nearly the middle of June.

As a straggler the Bar-tailed Godwit has been recorded from the Færoes, but its breeding-range barely extends as far west as Finmark, and though Wolley obtained the eggs in the Muonio district of Lapland, yet there he appears to have been only on the outskirts. On the Petchora the bird has barely been observed; and it had been only once obtained on the Yenesei, until, towards the end of June 1895, Mr. Popham found it breeding along that river in fair numbers, between lat. 69° and 72° N. From the Taimyr Peninsula to Alaska, and by way of Japan and China to Oceania, Australia and New Zealand in winter, we find a subspecies which is rather larger, less ruddy, and more marked with brown on the rump. During the colder months our form is irregularly distributed in Europe down to the Mediterranean basin; in Africa, it migrates to the Gambia on the west and the Somali country on the east; while in Asia it visits the Mekran coast and the mouths of the Indus.

Eggs obtained by Wolley in Finland, and figured by Hewitson, are light olive-green, blotched and streaked with brown; they measure 2·1 by 1·45, being similar to, but rather smaller than, those of the Black-tailed Godwit, the next species. Mr. Popham says (Ibis 1897, p. 105) that no two pairs occupy the same district, and the nest is a slight hollow in the high-lying tundra. Both birds incubate, but the male was found on the nest on three out of four occasions. The sitting Godwit remains on its nest till it can be almost caught in the hand, well knowing that in the resemblance of its back to the surroundings lies its best chance of escaping observation. The food consists of aquatic insects, worms, small crustaceans and molluscs. The note is syllabled by Mr. Harting as *lou-ey*, *lou-ey*.

In summer the adult male (in the foreground) has the head, neck and under-parts chestnut-red, with dark streaks from the crown to the sides of the breast; mantle variegated with wood-brown and black; rump white with brown streaks; tail buffish-white, barred with dark brown. Length 15·5 (bill 2·25), wing 8 in. The female is larger, but far less ruddy. After the autumn moult the under-parts are chiefly white, with a few dark streaks on the neck and breast; the upper parts are brownish-grey, which becomes ashy in winter; the true tail-feathers are chiefly ash-brown with dark shaft-streaks; but the long tail-coverts are, *at all seasons*, distinctly barred, so that in ordinary parlance the term "bar-tailed" is not inappropriate. The young bird has broad bars—retained through the winter—on the tail-feathers; upper parts tinged with buff and checquered with two shades of brown; under surface dull buff with dusky streaks.



THE BLACK-TAILED GODWIT.

LIMÓSA BÉLGICA (J. F. Gmelin).

This species used to breed in the south of Yorkshire until the opening of the present century, and down to 1829 in the fens of Lincolnshire and Cambridgeshire, while eggs were taken in Norfolk as recently as 1847. Now, however, the bird is observed only on the spring and autumn migrations and occasionally in winter; the passage southward beginning in August and the return taking place from April to May. At no season is this Godwit numerous, and north of the Humber it is of irregular occurrence, while it is seldom obtained on the west side, even on the marshes of the Solway. On the east coast of Scotland it is rare to the north of the Firth of Tay, but an example was shot at Loch Spynie in the autumn of 1878, another on Westray, Orkneys, on September 27th 1894, and Tiree, in the Inner Hebrides, is sometimes visited in spring. In Ireland

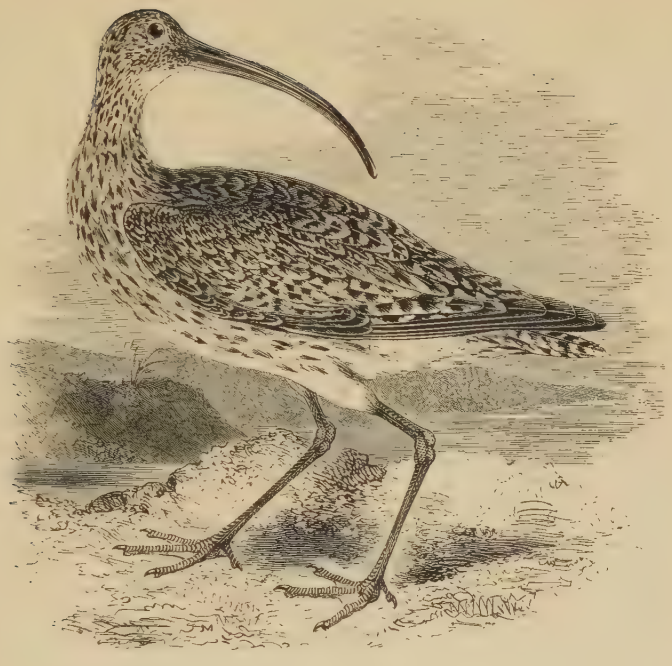
it is repeatedly met with from August to the end of autumn, but only exceptionally in spring (Ussher).

The Black-tailed Godwit has been known to nest in the Færoes, and does so annually in the south-east of Iceland; while on the Continent it breeds, sparsely, as far north as lat. 64°–65° in Scandinavia and Russia, plentifully in Poland, sparingly in Silesia, and—where the localities are suitable—in Northern Germany, Denmark, Holland and Belgium. Elsewhere it is chiefly known on migration, in the course of which it visits the Canaries and Madeira; its winter-quarters commencing in the basin of the Mediterranean and extending to Abyssinia. In Asia it is found in Western Siberia south of lat. 60° as far east as the valley of the Ob, and through Turkestan to the Altai, ranging over the Indian region to Ceylon in winter; while, east of the Lena, a larger form inhabits Eastern Siberia and Kamchatka in summer, passing through Japan and China to Australia and Polynesia during the colder months. The occurrence of the Black-tailed Godwit in Greenland is doubtful; and in North America the representative species is *L. hudsonica*, which is smaller and has dark brown—instead of white—axillaries.

The nest is a slightly-lined hollow among coarse herbage; the eggs, 4 in number, are pear-shaped, and of a pale olive colour with brown spots: measurements 2·2 by 1·5 in. An excellent account of the nesting-habits, by the late Mr. A. C. Chapman, is in 'The Ibis,' 1894, p. 340; the usual note being syllabled as *tŭ-ĕe-toōō*. The food consists of insects and their larvæ, worms &c.

The adult male in summer (figured in the foreground) has the head, neck and breast reddish-fawn colour, with dark markings on the crown and blackish bars on the lower breast; mantle brown, mottled with black; wing-bar conspicuously white; rump white; tail-feathers white at their bases, with a broad subterminal black band; belly whitish, barred with dark brown. Length 16 in. (bill 3·7), wing 8 in. The female is decidedly larger (though there is great individual variation), and her tints are duller. In winter the general colour is ash-brown above and greyish-ash below, the vent being white. The young are similar, but early in autumn they are tinged with rufous on the neck.

The specific name *belgica* is based upon a full description, with an excellent coloured plate, in Nozeman's 'Nederlandsche Vogelen'; while the term *ægocephala*, which has often been employed for this species, was originally bestowed on the Bar-tailed Godwit.



THE COMMON CURLEW.

NUMÉNIUS ARQUÁTA (Linnæus).

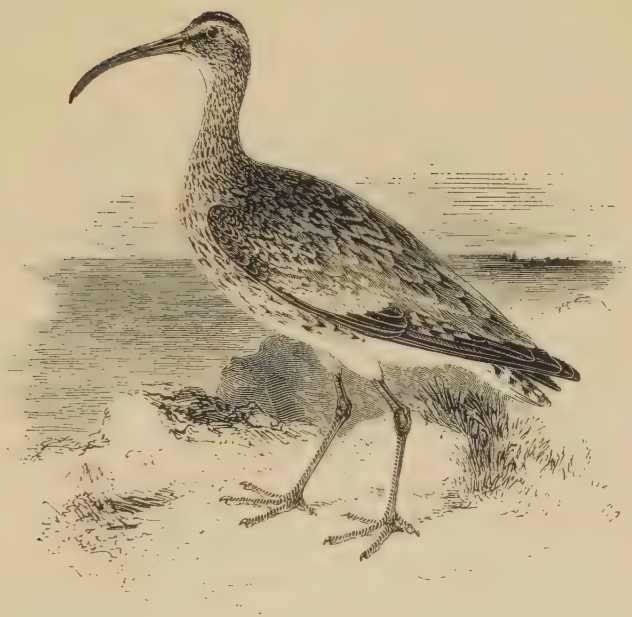
This species is to be found during the whole year wherever sand and mud-flats or rocks covered with sea-weed are left exposed by the receding tide; for even in spring, when the adults retire inland, their places are taken by a few immature birds which remain during the summer. The Curlew still breeds on the moors of Cornwall, Devon and Somerset, sparingly in Dorset, Wilts and Hants, freely in Wales and the neighbouring counties, and on the high ground northwards (including the Isle of Man) as far as the Border; also on low-lying heaths, such as Thorne Waste in South Yorkshire. It is even more generally distributed over the mainland of Scotland, as well as in the Orkneys and Shetlands, but is not positively known to nest in the Outer Hebrides, though it occurs there in autumn and winter. In Ireland it is common throughout the year.

The Curlew is only a straggler to the Færoes, and is almost unknown in Iceland, where its representative in summer is the Whimbrel; but it breeds more or less plentifully in Scandinavia, Russia, Poland, North Germany, Denmark, Holland and Flanders,

as well as on some of the wastes of Brittany. Immense flights cross Heligoland on migration, and the species is well known on passage throughout Central and Southern Europe, ranging as far west as the Canaries and Azores; while it winters in Africa from the Mediterranean to Damara-land and Natal, and visits Madagascar. As regards Asia, the birds found between the Caspian and Lake Baikal exhibit more white on the rump and axillaries than our western form, though they intergrade with it; and these visit the Indian region in winter. Eastern Siberia is inhabited by *N. cyanopus*—characterized by a broadly-barred rump—which migrates to Australia. The American representative of our bird is the large *N. longirostris*, with rufous axillaries. In the Mediterranean basin and Southern Russia, wandering to Holland, we find *N. tenuirostris*, no larger than the Whimbrel, with which it has been confounded: though quite unnecessarily, for it has a striated crown and its axillaries are pure white.

The shallow nest is on bare ground or in grass-pasture, or among the stems of bog-myrtle and heather; and the 4 large pear-shaped eggs, which are olive-green blotched with brown, and measure about 2·75 by 1·9 in., have been found near Carlisle early in April, while on the high moors of Northumberland incubation—in which both sexes take part—is not infrequent by the end of that month. Mr. Abel Chapman has remarked that for the first few days the young seldom go far from the nest. As long as they remain on the moors and pastures their diet consists of berries, worms, snails, spiders, insects &c., and in early autumn the birds are excellent for the table; but after they have resorted to the sea-shore and fed on crustaceans and marine animals they become unpalatable. The Curlew has often been seen to perch on tall trees; its flight is rapid, and a wedge-shaped formation is assumed by flocks. It is not only remarkably wary, but seems to take pleasure in alarming every living creature within hearing of its shrill *cour-lie*; while it has also a peculiar rippling and not unpleasant note.

The adult in spring-plumage has the feathers of the crown and upper parts pale brown, with darker central streaks; rump and upper tail-coverts white, the latter streaked with dark brown towards their tips; tail-feathers barred with dark brown and dull white; under-parts pale brown—nearly white on the belly—streaked with dark brown. The female is the larger bird and has the longer bill. Length 21–26 in. (bill 4·7 to 6), wing 11·5 to 12·25 in. In winter the under-parts are almost white; in the young they are washed with buff. The Curlew does not breed until its second spring.



THE WHIMBREL.

NUMENIUS PHÆOPUS (Linnæus).

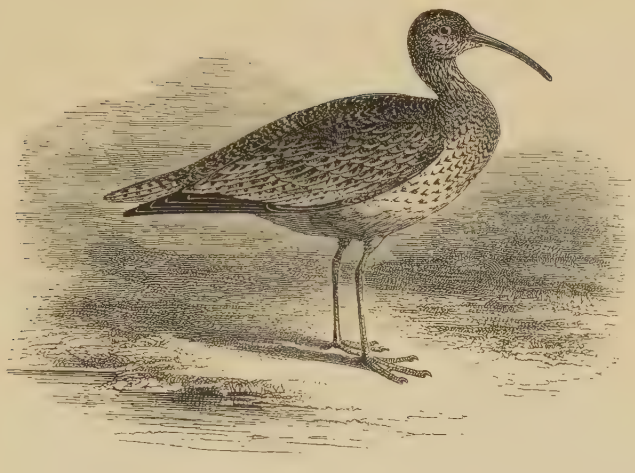
The Whimbrel sometimes makes its appearance on our shores in the early part of April, but the main body of migrants northward arrive in May, with a regularity which has procured for this species the name of "May-bird" in Cornwall, Hants, Norfolk and other counties. A small number of non-breeders remain on our coasts during the summer, while by the latter part of July the return passage sets in and continues through the autumn; at the latter season, however, the birds usually fly very high, and few are met with after the end of September, though a laggard has been shot in December. None are known to breed on the mainland of Scotland, but a small number nest on some of the Orkneys and a good many do so on several of the Shetlands; while a pair or two inhabit North Rona in the Outer Hebrides, and the other islands of that group are visited in spring. In Ireland the Whimbrel occurs on the west coast in winter (Irby), and is abundant on the inland bogs during the spring migration, but it has never been known to breed.

As a wanderer this species has occurred on Jan Mayen, and often

in Greenland. In Iceland and the Færoes it takes the place of the Curlew, from the beginning of May till September; while in Scandinavia it nests on the fells and to the north of the limits of forest-growth. In the Arctic and sub-Arctic regions of Russia it appears to be very local, while the greater part of Siberia is inhabited by a sub-species, *N. variegatus*, with the rump more streaked in the adult than in the young of our western form; and this eastern representative migrates southward to Australia. Our typical bird, however, visits a considerable portion of the Indian region, as well as Mauritius and Madagascar, and in Africa is found down to Cape Colony. Its wanderings extend westward to the Canaries and Azores, and on passage it is found over Europe to the Mediterranean, though it seldom occurs far inland. Its American representative, *N. hudsonicus*—with rufous axillaries—has been obtained in Iceland and once in the south-west of Spain.

A shallow depression in the herbage serves to contain the 4 eggs, which are usually laid from the latter part of May to the middle of June; they are of two shades of olive-green, blotched with brown: measurements 2·4 by 1·55 in. The Whimbrel is very pugnacious at its breeding-place, and I have seen it attack the Arctic Skua, while Col. Feilden observed it driving away the Lesser Black-backed Gulls, uttering its trilling cry, *tetty*, *tetty*, *tetty*, *tet*, as it darted to and fro with rapid flight. Its food consists of small crustaceans, insects, worms, and land-shells, such as *Helix ericetorum*; and it is said to be partial to bilberries, for it feeds much more on land than the Curlew. Owing to its note, "Titterel" is a common name for this bird in Sussex, while in the south and west Whimbrels are spoken of as "the Seven Whistlers," the rippling whistle being often repeated seven times.

This species is much smaller than the Curlew, from which it furthers differs characteristically in the markings of the head, the crown being dark brown with a broad pale streak down the middle; the general hue of the upper parts is darker, though otherwise the plumage is similar; the axillaries are white, barred with brown. Length 17·5 in. (bill 3·4), wing 10 in.; the female being rather larger than the male. The young are spotted on the back and barred on the wing-coverts and secondaries with buffish-white, a remarkably chequered appearance being thus produced; the rump is more or less streaked; the axillaries are only slightly barred, but the dark transverse markings on the tail-feathers are more numerous and defined than in the adults.



THE ESKIMO CURLEW.

NUMENIUS BOREÁLIS (J. R. Forster).

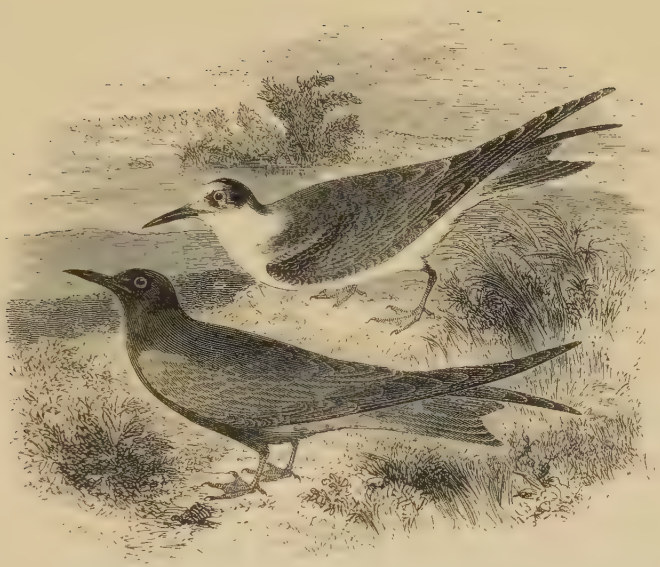
This small American species is an occasional straggler to the British Islands, the first instance on record being that of a bird which was killed in Kincardineshire on September 6th 1855. On September 29th 1879 another, shot in Aberdeenshire, was sent for preservation to Mr. G. Sim, who also received an adult male from Kincardineshire on September 21st 1880. An example, said to have been forwarded from Sligo, was purchased in Dublin market on October 21st 1870, and afterwards presented by the late Sir Victor Brooke to the Museum of that city. According to the late Dr. Churchill Babington, two were obtained near Woodbridge in Suffolk in November 1852, only one of which is now in existence; while he adds, on Hele's authority, that a bird, which was not preserved, was killed on the river Alde some few years before 1870. The latest occurrence is that mentioned by Mr. Thomas Cornish, at Tresco in the Scilly Islands, on September 10th 1887.

The Eskimo Curlew appears to be merely a visitor to Greenland, but is widely distributed during the summer throughout the Arctic regions of America from Hudson Bay to Alaska; only a few, however, remain to breed in the latter as far south as St. Michael's, though northward this is the most abundant member of the genus. It has wandered to the Pribilov Islands, but its representative in North-eastern Siberia, and southward by China and Japan to the

Moluccas and to Australia in winter, is *N. minutus* of Gould, (*Mesoscolopax minutus*, Sharpe), a slightly smaller species, which has paler and less barred under-parts, and has moreover the front of the tarsus transversely scutellated like the back; whereas in the American bird and typical members of the genus *Numenius* only the hind tarsus is reticulated. Although the Eskimo Curlew has been obtained in the Galápagos Islands, and also on the coast of Chile, it does not appear to pass down the Pacific sea-board of North America; its line of flight in autumn being rather to the eastward of the Rocky Mountains. Immense numbers migrate through the Mississippi valley, but none winter there, nor is a long stay made in any part of the United States to the north of Texas; some visit the Bermudas, while others pass southward as far as Patagonia and the Falkland Islands. On the migration northward in spring, few, if any, birds pass along the Atlantic coast, for, like the American Golden Plover, they prefer the route by, and to the west of, the Mississippi valley (G. H. Mackay).

Mr. MacFarlane, who found nests of this species between June 20th and July 10th, describes them as mere hollows in the Barren-grounds; the eggs, 4 in number, are olive-drab or light ash-green, blotched with various shades of brown: measurements 2 by 1·5 in. Four examples, after drawings by Mr. J. L. Ridgway, are figured in Poynting's 'Eggs of Limicolæ.' In autumn the bird feeds freely on crowberries, and it is so partial to a species of snail found on low rocks and mud-flats that Dr. Elliott Coues has seen flocks hovering distractedly over a party of gunners who were stationed on ground where these molluscs abounded. The note is an oft-repeated soft, mellow whistle; the flight is straight and very swift.

The points which distinguish this species from *Mesoscolopax minutus*, have already been indicated; the other diagnostic characteristics are: primaries with scarcely a trace of bars, no white on the rump, under-parts buff with transverse 'arrow-head' markings, axillaries chestnut barred with brown. Length 14 in. (bill 2·5), wing 8·55 in. As Seebohm pointed out in his work on the Charadriidæ, the pale stripe down the centre of the dark crown is sufficiently defined to show that this species belongs to the group of the Whimbrels rather than that of the Curlews; but the expediency of changing a long-accepted trivial name on such slight grounds may well be questioned.



THE BLACK TERN.

HYDROCHELÍDON NIGRA (Linnæus).

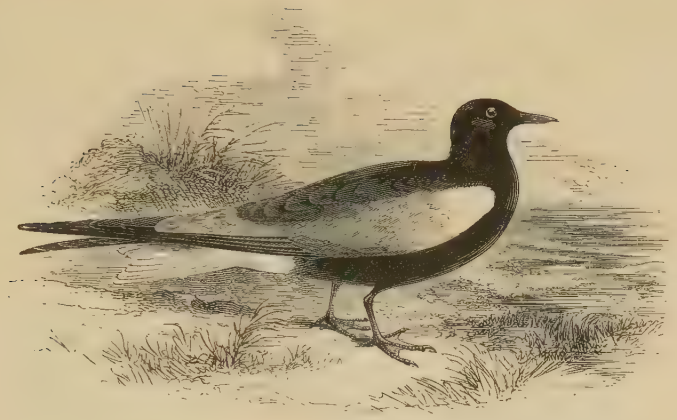
The Black Tern was a regular spring-visitor to England before drainage had done away with most of the fens and morasses to which it used to resort for breeding-purposes; but even in Norfolk the last eggs on record were taken as long ago as 1858, though early in this century the nests of the "Blue Darr," as the bird was called, might have been found by hundreds on the alder-swamps. In Lincolnshire a pair or two of the "Car-Swallow," may occasionally be seen in summer; but otherwise this species chiefly frequents our eastern and southern coasts, rivers, and inland waters in April and early May, rarely reaching to the north of the Aire and the Humber; while in August the young begin to make their appearance, and a few birds remain in the south-west as late as November. In the west of England it is rare, even on the marshes of the Solway, where, however, its eggs are said to have been taken in 1855; and though it has been met with on the Firth of Forth and other parts of the lowlands of Scotland, as well as on Loch Lomond, it is as yet unknown in the Hebrides or the Orkneys. The irregular occurrences recorded from Ireland are chiefly those of immature birds in autumn.

As a straggler the Black Tern was obtained in the Færoes in

September 1886. Although it occasionally wanders to the south of Norway, it is not known to breed north of about lat. 60° in the Baltic, the Gulf of Finland or Russia; but over the rest of the Continent it is abundant in suitable localities down to the Mediterranean; and it also nests in the marshes of North Africa. In winter it has been obtained as far south as Loango on the west and Abyssinia on the east; but all the specimens recorded under the name of *H. nigra* from Damara-land, or the Transvaal, have proved to be *H. leucoptera*, the next species. In Asia, the Black Tern cannot be traced beyond Western Turkestan, and there is no authentic record from India or China. In America, from Canada in summer to Chile in winter, its representative is *H. surinamensis*, the adults of which have the upper and under-parts deep black, and much white on the carpal joints, while even the young are darker than those of the Old World species.

From about the third week in May this bird may be found in colonies on wet marshes or by shallow pools, making its nest of decayed plants on heaps of wrack which rise and fall with the water, or on the firmer hummocks of the bog. The eggs, 3 in number, are ochreous or olive-green in ground-colour, boldly blotched with dark brown: measurements 1·45 by 1 in. The Black Tern feeds chiefly on aquatic insects, many of which—such as dragon-flies—it takes on the wing, and Mr. F. S. Mitchell has watched it swooping down upon the field-crickets (*Acheta campestris*) during their momentary appearance at the entrances of their burrows; it is also very partial to leeches, and will take small fish &c. The note is a shrill *crick, crick.*

The adult in nuptial dress (figured in the foreground) has the head and neck dark lead-grey, nearly black on the crown and nape; back, wings and tail slate-grey (the last slightly forked); throat, breast and belly dark lead-grey; under wing-coverts pale grey; vent white; bill black; legs and feet short, and reddish-brown in colour. Females have usually paler under-parts than males. Length 9·6 in. (bill 1·25), wing 8·5 in. After the moult, which begins towards the end of July, the forehead, throat and nape are white, as are also the under-parts for a short time, though they are usually barred with grey. The young bird (in the background) is mottled with brown on the head and mantle; but by the following spring the upper parts have become lead-grey, with a darker line remaining along the carpal joint. The full dress is not acquired till the second spring, when breeding takes place.



THE WHITE-WINGED BLACK TERN.

HYDROCHELIDON LEUCÓPTERA (Schinz).

This species, which has a more south-easterly habitat than the Black Tern, is an irregular visitor to our shores on migration, especially during May and June. In those months a good many examples have been obtained in Norfolk, while others have occurred on the coasts of Sussex, Hants, Dorset, Cornwall and the Scilly Islands, northward in Yorkshire and Durham, and inland near Coventry. The first British specimen on record was, however, shot in Dublin Bay, in October 1841, and I have examined a bird in full moult killed at Ilfracombe, North Devon, early in November 1870; these being the only autumnal instances known to me. Five more have been obtained in Ireland, all in spring and south or west of Dublin.

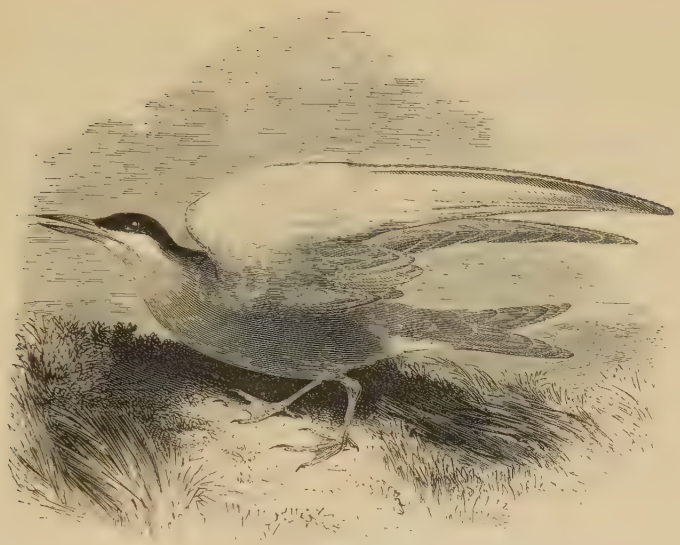
The White-winged Black Tern has only once been known to wander as far as Lund in Sweden, and its northern breeding-limits appear to be in the governments of Lublin and Siedlec in Poland, south of which it is by no means uncommon on some of the marshes of Central and South-eastern Europe. It probably nests in Sicily, as well as near Massaciuccoli and Venice on the mainland of Italy, which it also visits on migration; it frequents the Camargue, ascending the valley of the Rhone to Savoy and Central France; and it passes along the east coast of Spain in considerable numbers, though seldom seen in the south-west and not recorded by Mr. Tait from Portugal. In Western Morocco it is little known, but it appears to breed in Algeria, Lower Egypt, Nubia, and perhaps

Abyssinia ; while in winter it is found in flocks on the marshes and "vleys" of Africa down to the Transvaal and Damara-land. During summer it inhabits Asia, from the Caspian to the Amur, Mongolia and Northern China ; and it has occurred in Ceylon, though rare on the mainland of India. In winter it passes down Eastern Asia and islands to North Australia ; while two examples in full nuptial dress were shot in the province of Nelson, New Zealand, on December 12th 1868. In North America an adult was obtained on Lake Koskonong, Wisconsin, on July 5th 1873 ; and Col. Feilden shot a young bird in Barbados on October 24th 1888.

This gregarious species nests in marshes, and may sometimes be found in company with the Black Tern, for instance in Central Europe, where, however, the latter predominates ; but in Southern Russia large and distinct colonies are formed. The eggs, deposited on floating vegetation in May or June, are 3 in number, and resemble those of the Black Tern : measurements 1·35 by 1 in. The flight of this Tern is more rapid and its cry is harsher than that of the preceding species ; the food consists of dragon-flies and other aquatic insects.

The adult in summer has the head, neck and back glossy black, in strong contrast to the white on the carpal joint of the wing ; greater wing-coverts pearl-grey, and secondaries lead-grey ; primaries frosted with pearl-grey, which soon wears off, leaving the outer webs sooty-black ; upper tail-coverts and tail pure white, the latter very slightly forked ; under-parts black, with a brownish tinge on the belly ; vent white ; under wing-coverts and axillaries black : bill livid red ; legs and feet orange-red, and webs very much indented. Length 9·3 in. (bill 1·1), wing 8·2 in. After the autumn moult the head, neck, and under-parts (inclusive of the wing-coverts) are white, and the mantle and tail are grey. The young bird—which resembles the adult in winter-plumage, though at first mottled with brown on the upper parts—may be distinguished from immature *H. nigra* by its shorter bill, longer toes with more deeply incised webs, paler rump and tail, and more defined wedge of white on the inner webs of each primary. The feathers on the carpal joint and of the tail do not become pure white until the third year.

The late G. R. Gray erroneously identified this species with the *Sterna nigra* which Linnæus described as "found on the small reedy islands about Upsala," and which was, of course, the Black Tern. Being considered an authority on nomenclature, especially by foreigners, his unfortunate precedent has been only too widely followed, and has occasioned much confusion.



THE WHISKERED TERN.

HYDROCHELIDON HÝBRIDA (Pallas).

The Whiskered Tern has even a less northward range than the preceding species, and only wanders to our islands at long intervals. It was first recognized by Heysham, who selected the subject of the above illustration from some sea-birds which had been shot at Lyme in Dorsetshire towards the end of August 1836; in September 1839 one (in the Warren collection at the Dublin Museum) was obtained at the mouth of the Liffey; a third was killed, according to Mr. Southwell, near Hornby Castle, Yorkshire, in 1842; an adult female containing advanced ova was shot on Hickling Broad, Norfolk, on June 17th 1847, and one was obtained at Dersingham in October 1890; an immature example was procured at the end of August 1851, near Tresco, in the Scilly Islands; an exhausted adult picked up on the water near Plymouth in May 1865 and presented to me by the late Mr. Gatcombe, is now in the British Museum; and Mr. Hart, of Christchurch, Hants, has an adult killed in June 1875. An old male, shot in Nithsdale, on May 28th 1894, is in the Edinburgh Museum.

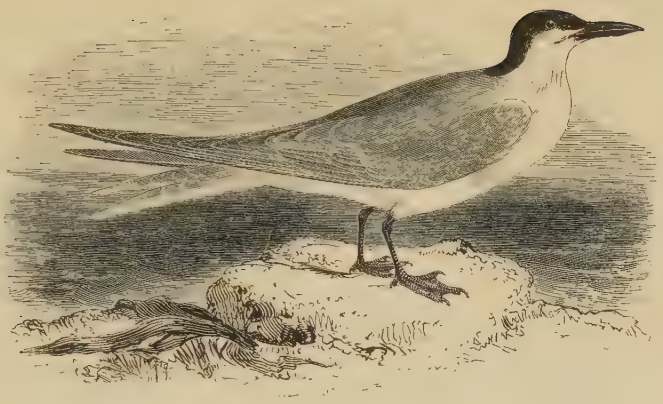
This Tern is a very rare straggler to Northern Germany, and seldom wanders up the valley of the Rhone, though it used to nest sparingly in the delta of that river. Large numbers arrive by the middle of April to breed in the marshes of the south-west of Spain;

in Italy the bird is well known on passage; there are important colonies in the swamps of the Danube, as well as in Turkey, Greece and the southern districts of Russia; and a few pairs occasionally nest as far north as the morasses near Lublin in Poland. In North Africa, from Morocco to Egypt, the Whiskered Tern is abundant in suitable localities, and it has been found in the months of our winter in full breeding-plumage, as well as in immature dress, as far as the Cape of Good Hope. In Asia it is distributed from the Mediterranean to Mongolia, and nests freely in Northern India, while southward it reaches the Moluccas. There the northern birds seem to meet with those which I believe to have been bred in Australia; the winter-plumage of the latter being slightly paler than that of our northern examples, although I can find no difference between adults in nuptial dress from Queensland and from Europe. A young bird brought from Barbados by Schomburgk is in the British Museum.

Like its congeners, this Tern breeds in colonies; its nest being often a large tangled mass of growing weeds pulled together on the surface of the water. The eggs, 3 in number, are usually of a pale green ground-colour, though sometimes stone-grey or buff, spotted, blotched or scrolled with brown and black: measurements 1·55 by 1·15 in. In Europe incubation commences in May, but July is the usual month in India. The food consists of dragon-flies, grass-hoppers, caterpillars, aquatic beetles &c., as well as of newts, small fish and frogs. The flight is buoyant, but not very swift.

The adult in breeding-plumage has the forehead, crown and nape black; from the gape to the nape a broad white stripe which forms the 'whisker' from which the bird derives its trivial name; upper parts slate-grey, darker on the shoulders and primaries, except when the latter are frosted with pearl-grey; chin and throat greyish-white; breast slate-grey; belly and flanks nearly black; under wing-coverts pure white; axillaries white with a tinge of grey; bill blood-red; legs, feet and webs vermilion, the webs less indented than in *H. leucoptera*. Length 11 in. (bill 1·4), wing 9·25 to 9·5 in. Indian birds, which are probably almost sedentary, are smaller than Western examples, which evidently take long journeys to South Africa. In winter the forehead and under-parts are white; the crown, nape and ear-coverts being only streaked with black; while the mantle is paler than in summer, and is sometimes of a delicate pearl-grey. The summer-dress is assumed by a moult, which commences in February or March.

This and the two foregoing species constitute the natural sub-division of "Marsh-Terns."



THE GULL-BILLED TERN.

STÉRNA ÁNGLICA, Montagu.

This species was first made known by Montagu, from specimens shot in Sussex, and, unaware that it was a mere visitor to our shores, he bestowed upon it the inappropriate name of *anglica*. Since the date of his discovery, examples have been obtained as far north as Blackpool in Lancashire and the vicinity of Leeds in Yorkshire; in Norfolk no fewer than ten have been taken, and several have occurred in Kent, three in Sussex, and one each in Hants, Devon, Cornwall and Scilly: almost all of them in spring or summer. A record from Ireland is the result of an erroneous identification.

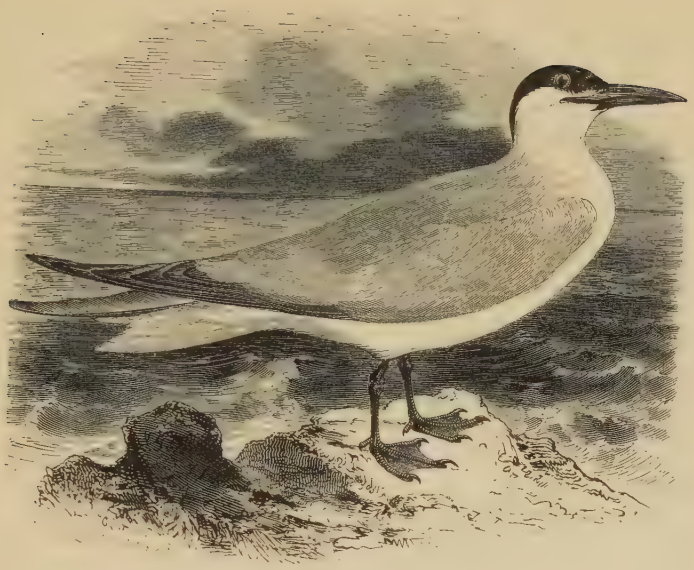
It is not remarkable that this widely-distributed Tern should occasionally visit England, seeing that it annually nests on the Island of Sylt and a few spots on the west coast of Denmark. In the Netherlands, Central Europe, and the north of France, it is only of accidental occurrence, but it breeds at the mouth of the Rhone, and abundantly in Spain on the sand-banks between Cadiz and the Portuguese frontier; while, though chiefly a migrant in Italy, it nests on the salt-lagoons of Greece, Asia Minor, and the Black and Caspian Seas. In similar situations it is plentiful from Morocco to Egypt, and in the Red Sea; in Asia it is found in summer as far north as the Hoang-ho valley in Mongolia, and also breeds on the islands of the Persian Gulf. In the cold season it visits India and Ceylon, as well as Southern China and the Eastern Archipelago; while in the last the northern birds meet with individuals of a slightly

larger and paler race, which breeds in Australia and was distinguished by Gould as *S. macrotarsa*. In America the Gull-billed Tern nests along the east coast from New Jersey to Texas, as well as in the Bahamas, Cuba &c., and probably on the back-waters near Santa Catarina in Brazil; while it ranges as far south as Patagonia. On the Pacific side the late Mr. Salvin obtained it in Guatemala.

A slight hollow scratched in the earth or sand, lined with a few fragments of sea-weed or dried grass, serves as the receptacle for the eggs, which are 2 or 3 in number; their ground-colour is usually pale buff—occasionally of a greenish tint which soon fades—blotched and spotted with several shades of brown: measurements 2 by 1·4 in. During the breeding-season the note resembles the syllables *che-áh*, but at other times the bird utters a laughing *af, af, af*, like a Gull. In Ceylon Col. Legge found it feeding on frogs, crabs and fish; in Egypt Von Heuglin observed it darting into the dense smoke of a prairie fire in pursuit of locusts; and in Algeria Salvin noticed it hovering over grass fields, and pouncing upon grasshoppers and beetles; it also captures many species of insects on the wing. Its flight is graceful but not very rapid, the long wings being plied with steady measured strokes.

The adult in summer has the forehead, crown and nape jet black; upper parts pearl-grey, except where the frosting has been rubbed off the primaries, which are then darker, especially on the edges of the inner webs; under-parts white; bill black, very stout and strong; legs and feet black, with a tinge of red. Length 15 in. (bill 1·9), wing 12·5 in. In winter the head is white, with ash-grey streaks, some of which unite and form patches before and behind the eye and on the ear-coverts. The young bird is mottled and striped with brown, tinged with buff on the upper parts, while the bill and legs are brown; and even in the second year, when breeding begins, the latter are still livid.

This species occupies a position between the Marsh- and the typical Terns. The toes are almost as fully webbed as in the true Sea-Terns; while the tail is short, and the lateral feathers are slightly rounded, though more pointed than in the Marsh-Terns. The bill is remarkably robust and obtuse; and the tarsus is proportionately longer than in any other species. For these reasons the bird has justifiably been made the type of the genus *Gelochelidon*, which I have accepted (Cat. Birds Brit. Mus., xxv, p. 4 and p. 25); but, inasmuch as genera are matters of convenience, I do not lay stress upon its use in the present work.



THE CASPIAN TERN.

STERNA CÁSPIA, Pallas.

This fine Tern, the largest member of the genus, is of more irregular appearance on the coast of England than might be expected, seeing that some of its breeding-places are at no great distance. According to an excellent summary of its occurrences by Mr. J. H. Gurney (Zool. 1887, p. 457), nine examples have been obtained—and others have been observed—on the coast of Norfolk between 1825 and 1860; while eight have been killed, at various times and places, in Suffolk, Kent, Hants, Dorset, Lincolnshire and Yorkshire; and Mr. E. Bidwell saw an individual near the Farne Islands on June 6th 1880. As regards Scotland, Mr. Oswin Lee states that he made a sketch of one of two birds noticed at the Findhorn bar on June 12th 1887. From Ireland there is as yet no record.

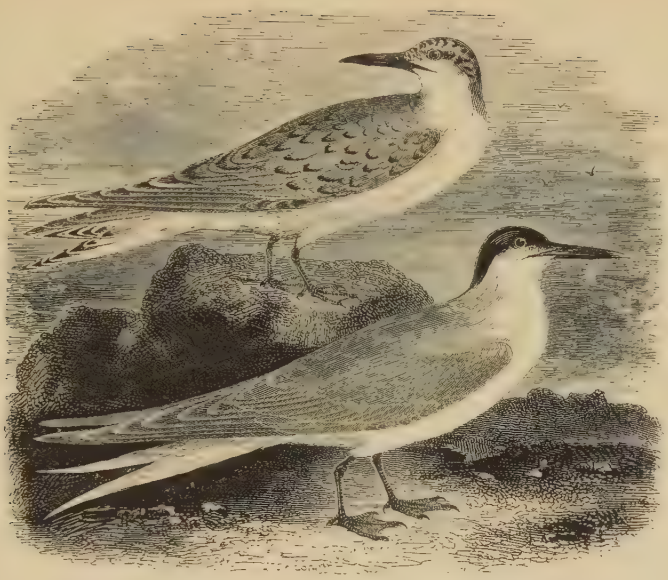
As a wanderer the Caspian Tern has been obtained at Vagoe in the Færoes on May 10th 1887 (Feilden). It breeds in colonies on the sandy shores and islands of Sweden and Denmark, while a well-known haunt is (or was) Sylt, one of the North Frisian Islands; but I believe that a few birds have nested still nearer to us, namely on the coast of Holland to the south of the Maas, for I saw six adults flying in pairs and evidently going out to fish, in the early dawn of

July 9th 1875. To the waters of France, Switzerland, and the interior of the Continent, this Tern is only a straggler; but it breeds on the eastern shores of Spain, as well as on some islets near Sardinia, and is generally distributed throughout the Mediterranean; it also nests by the Black and Caspian Seas, from the latter of which it was first recorded by Pallas. It arrives at the northern limit of its range in spring, and departs for the south in autumn; but is resident on the northern littoral of Africa, and along both sides of that continent, as far as Cape Colony. In Asia it ranges from the Caspian to China, crossing the lofty mountains on its migrations to India and Burma in winter; while it breeds on the shores of the Persian Gulf, as well as in Ceylon. In Australia and New Zealand it is resident. In America this hardy species is found from Labrador to the Yukon, breeding as far north as the Great Slave Lake and a little beyond the Arctic circle; while southward it can be traced to both sides of Mexico.

The Caspian Tern lays in May or June on the bare sand, in a slight hollow which is occasionally lined with pieces of shell or a few bents; the eggs are 2–3 in number, and in colour stone-buff, spotted and scrolled with ash-grey and dark brown: measurements 2·5 by 1·7 in. The ordinary food consists of fish. The note is a loud, harsh *krâke-kra*, uttered freely by the bird when its breeding-haunts are invaded. This species is nearly as partial to brackish lakes as to the sea-shore, and when searching for food it has a habit of keeping its bill pointed downwards, almost at a right angle to its body.

The adult in summer-plumage has the bill vermilion-red; crown and nape glossy greenish-black; neck and under-parts pure white; mantle pale french-grey, darker at the tips of the primaries, on which the frosting quickly wears off: tail white with a greyish tinge, and only slightly forked; legs and feet black. Average length 20 in. (bill 3·3), wing 16·5 in.: the male being larger than the female and having a stronger bill, though there is considerable individual variation, irrespective of locality. In winter the crown is streaked with black, and there is a dark patch behind the ear-coverts. The young bird has the forehead and crown white; upper surface mottled with ash-brown; quills ash-grey; bill reddish horn-colour.

In the Caspian Tern the tail is very short, less than one-third the length of the wing; while the bill is exceptionally stout and deep. For these reasons Kaup made this species the type of the genus *Hydroprogne*, which I have adopted (Cat. B. Brit. Mus. xxv., p. 4), but its acceptance in this work is not pressed.



THE SANDWICH TERN.

STERNA CANTÍACA, J. F. Gmelin.

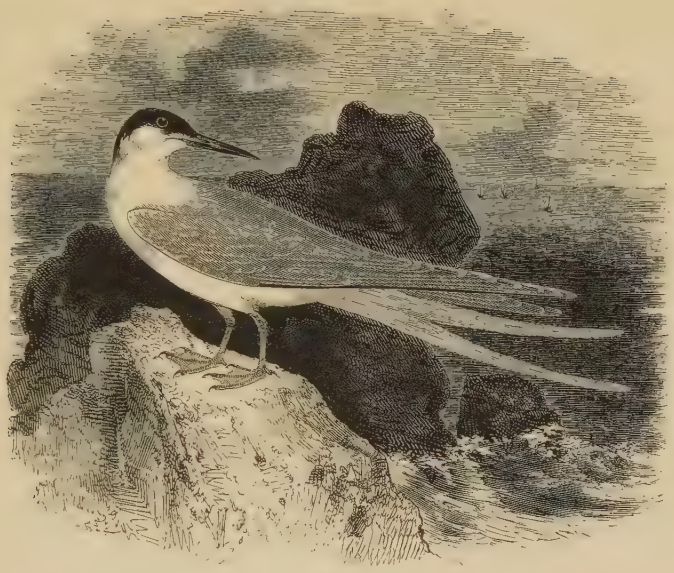
The Sandwich Tern, which derives its name from the place where it was first observed in 1784, is a regular visitor to the British Islands; arriving in some localities towards the end of March, though on the east coast usually about the middle of April, and leaving for the south early in autumn. It not unfrequently changes its breeding-grounds when persecuted, and ornithologists who have recently explored the Scilly Islands have failed to find it there in summer, while particulars respecting Kent, Essex or Suffolk might prove prejudicial; but a large and well-known colony inhabits the Farne Islands; and on the west a limited number nest on Walney Island off Lancashire, and at Ravenglass in Cumberland. Beyond the Solway a few pairs are found on the coast of Kirkcudbrightshire, and birds seem to have occurred on Loch Lomond, as well as on Tiree; on the east of Scotland there are breeding-places up to the mouth of the Findhorn; and northward a colony was discovered in 1893 on North Ronaldshay, Orkneys. In Ireland there is a carefully protected site near Ballina, described by Mr. R. Warren (Zool. 1877, p. 101), and another may exist.

This species has visited Norway, but it is seldom found northward of Denmark and is almost unknown to the east of Copen-

hagen in the Baltic, though it nests in large colonies on the low coasts and some of the islands of the North Sea, from Jutland to the Netherlands. On migration it visits the shores of France, and in 1898 several pairs bred on an islet near Guernsey; while it is common on passage in Spain, where some remain to nest, as they do in Sardinia, and perhaps in Sicily. Further up the Mediterranean it is comparatively rare, but it is plentiful on the Black and Caspian Seas, and occurs along the Arabian and Persian coasts, and as far as Karachi in Sind. It nests in the Canaries, and frequents the northern waters of Africa, going down the west coast in winter as far as Cape Colony, and reaching Natal on the east. In America this Tern (sometimes distinguished as *Sterna acuflavida*) inhabits the Atlantic sea-board from New England southward to Honduras, and the late Mr. Salvin found it breeding in the latter, while he noticed it on both coasts of Guatemala; in winter it has occurred at Cartagena, Colombia.

The nests are frequently mere shallow holes scratched in the sand among sea-campion or other plants, but on Walney Island and elsewhere tolerably solid structures of bents have been noticed. The eggs are usually 2 and rarely 3 in number, and while many are of a warm stone-colour, thickly scrolled and spotted with ash-grey, black or deep reddish-brown, in others the ground-colour is creamy-white: measurements 2 in. by 1·5 in. By fishermen this species is distinguished as 'the Tern,' and other species pass under the general name of 'Sea-Swallows.' It subsists chiefly upon fish, especially the sand-lance and young gar-fish. Its flight is strong and rapid, the bird making a great advance at each stroke of the pinions; and, except when engaged in incubation, it is usually on the wing, uttering at intervals a hoarse and grating cry, *kirhitt*, *kirhitt*, audible at a long distance.

The adult in spring has the bill chiefly black, yellow at the tip; forehead, crown and elongated nuchal feathers black; mantle pearl-grey; quills rather darker on the portion of the web next to the white shaft, but pure white on the greater part of the inner web down to the very tip; rump and tail white; throat and under-parts white, often suffused with a lovely salmon-pink; legs and feet black. In June the black on the forehead begins to diminish, and much of it has disappeared by the end of August, but the nape remains mottled throughout the winter. Length 16 in. (bill 2·5 in.), wing 12 in. The young (in the background) has the head barred with black and white; the back, wing-coverts and tail-feathers varied with angular lines of black.



THE ROSEATE TERN.

STERNA DOUGÁLLI, Montagu.

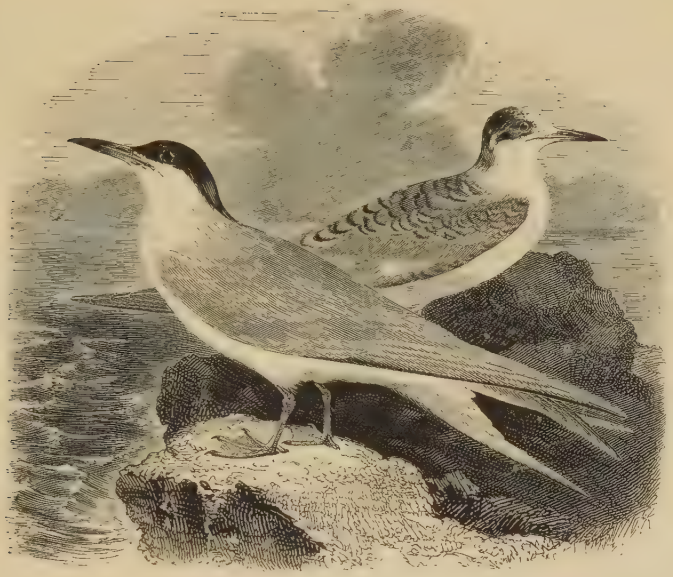
This slender and elegant species was discovered on the Cumbraes in the Firth of Clyde by Dr. MacDougall of Glasgow, who sent a specimen to Montagu. Selby subsequently found it breeding in some numbers on the Farne Islands, which were afterwards almost deserted, but of late years several pairs have again been noticed, and there is now a prospect of efficient protection. Foulney and Walney Islands on the Lancashire coast, as well as some of the Scilly Islands, were formerly frequented by the bird, though latterly it has seldom been observed in any of those localities. On the other hand, it is known to have nested recently in Wales, and a few pairs have been seen in Norfolk and Suffolk ; while Mr. Oswin Lee appears to have identified breeding birds on the Moray Firth. Its temporary disappearance may have been due in some measure to the increase of the larger and stronger Common Tern, before which, as Dr. Bureau informed me of his own knowledge, three colonies of the Roseate Tern had successively given way on the coast of Brittany within a few years. Indiscriminate egging on the part of fishermen has also been prejudicial, especially as regards some former settlements in the north of Ireland; and the gunners

who used to shoot all kinds of Terns for sport, or for plumes for ladies' hats, may have affected the Roseate to a slight degree. It must, however, be remembered that this species arrives only at the very end of April, and leaves, with its young, as soon as ever these can fly; and I have seen very few immature examples from our seas.

The Roseate Tern is an oceanic and southern species, and is not known northward of lat. 57°, being merely a straggler to the eastern coasts of the North Sea. On migration it visits Lake Léman in Switzerland; it has several colonies on the west side of France; and in the Mediterranean it breeds on the coast of Tunisia; while it ranges to Madeira and the Azores, and across the Atlantic—by way of the Bermudas—to America. There it is found breeding along the east coast, from New England to the West Indies and Venezuela, though it has not yet been obtained in the Pacific. It has been recorded in error from the south-west of Africa, but I have received specimens in breeding-plumage from Cape Colony; while by way of Madagascar and the Mascarene Islands it can be traced through the Indian Ocean to Ceylon, the Andaman Islands and South China, in all of which it nests, as it does in tropical Australia; it has also been obtained in South Japan.

The eggs, 2–3 in number, are laid on the ground, and vary from creamy-white to buff-colour, blotched and clouded with bluish-grey and rich brown; they are as a rule more elongated than those of the Arctic Tern, and measure about 1·7 by 1·15 in. The food consists of fish obtained from the sea, which this species almost exclusively affects, seldom visiting even a salt lagoon. In flight, except when the bird is turning or hovering, the two long tail-feathers are carried close together. The alarm-note is a rather peculiar and harsh *crake*.

The Roseate Tern owes its name to the beautiful, though evanescent, pink tinge on its under-parts; the mantle is of a paler grey than in the Arctic or Common Terns, and, except in mature birds, this grey extends to the tail-feathers; in the primaries the white inner margins are well defined to the very tips and even a little way up the outer webs (more so than in the much larger Sandwich Tern), and this distinction holds good for young as well as old birds. Another characteristic is the shortness of the wing as compared with the length of the bird. Early in the breeding-season the bill is orange at the base, but soon becomes chiefly or wholly black; the legs and feet are red. In winter the forehead is nearly white. Length 15·5 in. (bill 1·9, tail 7·5 to 8), wing 9·25 in.



THE COMMON TERN.

STERNA FLUVIÁTILIS, Naumann.

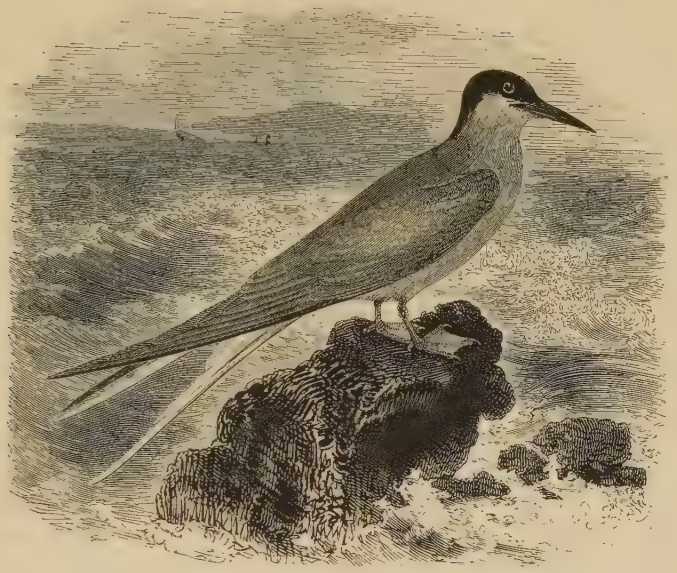
The Common Tern is deservedly so named as regards the southern and even greater part of the British Islands, but there is considerable difficulty in sketching its northern summer-range with exactitude, owing to the fact that this over-laps the southern limits of the Arctic Tern. Broadly speaking, I believe that the Common Tern is the predominant species along the shores of the Channel and on the west side of Great Britain as far north as the Isle of Skye; while on the east it is found from Kent to the Moray Firth. Northwards, it yields numerically to the Arctic Tern, and often shows a liking for fresh-water lochs or estuaries rather than for exposed islands, though Mr. Harvie-Brown states that in 1885 it was nesting abundantly at the western end of the Pentland Skerries, while the eastern was occupied by a colony of Arctic Terns. There is no conclusive evidence of the occurrence of the Common Tern in the Shetlands, but several colonies are now known in the Orkneys and Outer Hebrides. When the two species inhabit the same area, they frequently shift their ground from year to year in a confusing manner, and this, no doubt, caused Booth to miss seeing the Common Tern on the Farnes, where large numbers undoubtedly

breed in most seasons. In Ireland it is the more plentiful bird in the south, while it appears to rival the Arctic Tern in the north, and it frequently nests by the margin of fresh water. It usually reaches England about the end of April, and the autumnal migration lasts from August to October, while on passage this Tern may often be observed on rivers and inland waters, even in London.

During the warmer months this species is widely distributed on the coasts, rivers and lakes of Europe, from Norway to the Mediterranean, Black and Caspian Seas; as well as in North Africa, and westward to the islands of the Atlantic. Across that ocean it breeds abundantly in North America from Labrador to Texas, though scarcely known on the Pacific coast; while it has been obtained at Bahia, Brazil, in winter. At that season it can be traced down the west side of Africa to Cape Colony, and in Asia to India, Ceylon and the Malay Peninsula; it is also found in summer across the temperate regions of Asia; but birds from the area between the Caspian and the elevated lakes of Kashmir, Tibet and Southern Siberia have a more vinaceous tint on the under-parts, with smaller bills and feet than the strictly maritime examples.

The eggs, 3 in number, are laid on sand, shingle, dry wrack or short herbage, a few crossed bents being occasionally added; they vary in colour from dull grey to stone-buff, blotched with bluish-ash and dark brown: measurements 1·7 by 1·1 in. Exceptionally eggs have been found by May 15th, but incubation hardly becomes general until the early part of June. On the approach of an intruder the parents utter a sharp *pirre* or *kik-kik*, and when their young are hatched they will often skim over the spot and drop small fish close to the nestlings, whose mottled colour renders them almost indistinguishable from the surrounding shingle. The food consists of young coal-fish, sand-eels, shrimps and other crustaceans.

The adult in summer has the bill orange-red, with a horn-coloured tip; head and nape black; mantle dark pearl-grey; rump whitish; tail-feathers white, with grey outer webs, those of the streamers being darkest; breast and belly pale vinaceous-grey; legs and feet coral-red. In winter the forehead is sprinkled with white, the under-parts are whiter, and the colours of the bill and feet are duller. Length 14·25 in. (bill 1·7, tail 6·5), wing 10·5 in. The young bird has the crown and nape streaked with blackish-brown; mantle with ash-brown bars, which gradually disappear, till only a dark band along the carpal joint remains; tail-feathers grey on their outer webs; under-surface white; bill, legs and feet reddish-yellow, turning nearly black in winter.



THE ARCTIC TERN.

STERNA MACRÚRA, Naumann.

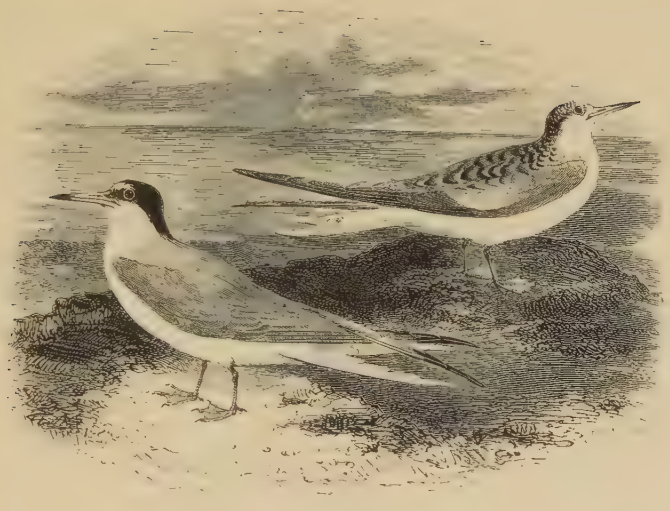
This northern representative of the preceding species appears to be the only Tern that nests in the Shetlands, while southward it decidedly predominates over the Common Tern in the Orkneys, the Outer Hebrides, and along the west coast of Scotland to the Isle of Skye. On the east side of Great Britain it breeds in several localities down to the Farne Islands, south of which it is only known on passage. In the west of England it nests on Walney Island, where, however, the Common Tern outnumbers it; and the same must now be said of the Scilly Islands, on which, according to Rodd, the Arctic Tern was formerly in the ascendant. In Ireland it breeds on islands off the coast, from Wexford to Antrim, and more plentifully in cos. Donegal, Mayo, Galway, Kerry and Cork. On migration it is found on all our shores, but rarely inland.

Beyond the British Islands the Arctic Tern occurs in abundance —during the short summer of the northern regions—as far as human foot has trod; for Col. Feilden, when with H.M.S. 'Alert,' obtained it above lat. 82° N., and Parry's Expedition observed it beyond Spitsbergen, while it has been recorded from Franz Josef Land. In Asia, as well as in America, it is completely circumpolar in its range.

On migration it can be traced along the Atlantic sea-board to the Canaries and the Azores, a straggler occasionally penetrating into the Mediterranean as far as Italy; it descends the coast of Africa to Table Bay; and specimens obtained at sea to the south-east of Madagascar, and even in lat. 66° S., far beyond New Zealand, are in the British Museum. The islands of the Southern Ocean are inhabited by two nearly-allied but well-defined species, while there is a third representative on both sides of South America; but on the Pacific coast Staff-Commr. MacFarlane, when in H.M.S. 'Constance,' obtained an Arctic Tern off Arica. It occurs in Kamchatka and Amur-land; but there, as well as in Japan, and in Eastern Siberia as far as Lake Baikal, the representative species is *S. longipennis*, which is intermediate between the Arctic and Common Tern, and has a black bill, small ruddy legs and feet, with grey under-plumage.

In Ireland, Scandinavia, and Arctic America this bird has been found nesting by fresh-water lakes, but its breeding-places are usually by the sea. The eggs, laid in a depression of the sand or on scanty herbage, or even on the bare rock just out of reach of the waves, are sometimes 3 but often only 2 in number; they are slightly smaller than those of the Common Tern, measuring about 1·6 by 1 in., and are subject to more variations, those with a pale bluish-green ground-colour being frequent, while a rich ochre-red with rufous-brown spots is occasionally found. In defence of its nest the bird is very bold, sometimes striking the intruder sharply with its beak, and a flock has been seen to mob and drown a Hooded Crow. In food and general habits it does not differ materially from the preceding species, and both may be seen dashing down with such force as to raise a cloud of spray and completely submerge themselves.

The adult in summer may be distinguished from the Common Tern by its blood-red bill, distinctly pearl grey under-parts (without any vinaceous tint), and longer lateral tail-feathers. At all ages its shorter tarsi are characteristic, though the difference is not invariably so great as some writers have supposed; a better distinction being the narrowness and pale colour of the stripe next the shaft on the inner web of each of the long primaries: this stripe being much broader in *S. fluviatilis*. The young of both species go through similar seasonal changes. The legs and feet are coral-red in spring —duller in the young—and nearly black in winter. Birds which are a year old have a dark bar on the carpal joint until the autumn moult; they breed in the following June. Length 14·5 in. (bill 1·6, tail 7·5 to 8), wing 10 in.



THE LITTLE TERN.

STERNA MINÚTA, Linnæus.

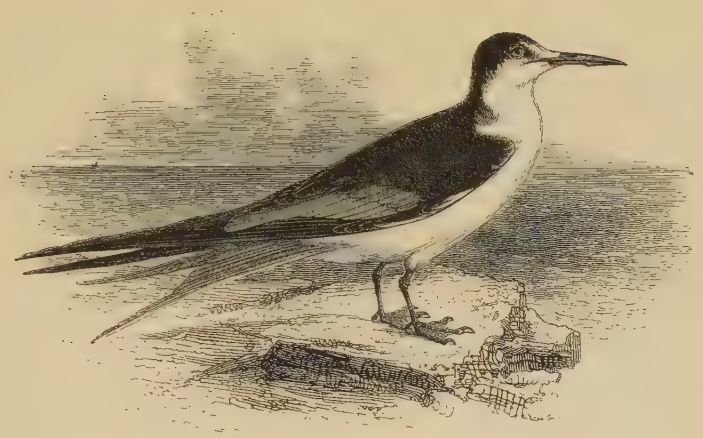
Early in May this smallest of the British Terns makes its appearance on our coasts, especially on those which present low flat shores covered with sand, broken shells and shingle. In such localities it may be found along the English Channel and from Kent northward to the Humber, but the small colony which Selby found on the coast of Northumberland opposite Holy Island, has ceased to exist for many years. Mr. Wm. Evans informs me that this is also true of Gullane in Haddingtonshire, but the bird still nests near the mouth of the Tay and in Aberdeenshire; though only a pair or two can be recorded from the south-east of Sutherland and none from the west. Of late years eggs appear to have been taken in the Orkneys, and a bird was obtained near Stornoway, Outer Hebrides, on August 3rd 1894, while colonies exist on Tiree. Southward there are small settlements along the west side down to the Solway, below which the Little Tern breeds in suitable localities in Cumberland, Lancashire, Wales and Cornwall. In Ireland it nests in many places, though seldom in large numbers, but it has much increased of late. As a rule it leaves in September or early in October, though a laggard has been obtained in the third week of December.

The Little Tern seldom occurs in the northern part of the Baltic

but is abundant on the south shore of that sea; while it follows the course of the large rivers for a great distance, and nests on their islands and sand-banks, so that it may be said to extend across the Continent to the Mediterranean, Black and Caspian Seas. It also frequents the Atlantic coast, breeds in North Africa as far as Lower Egypt, and on the west side it descends in winter to Cape Colony. Along the Asian plateau it is found nesting as far as Northern India, visiting Burma and even Java; but in Ceylon, China, and the eastern region generally, its representative is *S. sinensis*, which is rather larger and has white shafts to all its primaries; while *S. saundersi*, with black shafts, inhabits the African and Indian coasts. In North America we find *S. antillarum*, with dark shafts, as in our bird, but with a grey rump and very little black at the tip of the bill; whereas on the east side of South America and far up the great rivers, *S. superciliaris*, with stout and wholly yellow bill, is the representative species. These and other small Terns have been placed by some systematists in the genus *Sternula*.

The 2–3 eggs, laid on the bare shingle or soil towards the end of May or early in June, are stone-coloured—often with a bluish tinge—spotted with ash-grey and dark brown: measurements 1·35 by ·95 in. Far from showing fear when its haunts are approached, the bird advances with rapid beats of its long pinions, uttering a peculiarly sharp *pirre*, and it will frequently settle on its nest not long after being disturbed. It feeds on small surface-swimming fish and their fry, shrimps and other crustaceans. Like most Terns, it may often be seen swimming or resting on the water.

The adult in summer has the bill orange-yellow tipped with black; forehead white, loral stripe, crown and nape black; mantle pearl-grey; wing-feathers grey, with white margins to the inner webs, and with dark shafts to the two outer quills, which are, moreover, ash-grey; tail and entire under-parts white; legs and feet orange. Length 9 to 9·5 in., according to the length of the tail; wing 6·75 in. In winter the black on the head is duller in colour. The young bird (figured in the background) has the bill dark brown at the tip, paler at the base; forehead, crown and nape tinged with buff and streaked with blackish-brown; mantle dull grey, tinged with buff and mottled with umber; tail-feathers greyish-white, slightly freckled with brown near the tips. The black loral streak is not well defined until after the second moult, up to which period a dark line on the carpal joint and a grey tinge on the rump and tail-feathers indicate immaturity; breeding takes place the following spring.



THE SOOTY TERN.

STERNA FULIGINÓSA, J. F. Gmelin.

The specimen figured is said to have been shot in October 1852 at Tutbury, near Burton-on-Trent, and having been purchased by Mr. H. W. Desvœux, of Drakelow Hall, it was exhibited by Yarrell at a meeting of the Linnean Society in February 1853. Mr. J. E. Harting has stated in 'The Field' that he examined in the flesh an example killed on June 21st 1869, near Wallingford in Berkshire; while Mr. A. C. Foot of Bath sent me an adult, with the information that it was caught alive, after wet and windy weather, about three miles from that city, on October 4th or 5th 1885, and was seen in the flesh by the late Rev. Leonard Blomefield as well as by the Librarian of the Museum. Other birds recorded by this name have proved to be Black Terns.

On the Continent, this species has been noticed as a wanderer on three occasions. Naumann states that one was obtained near Magdeburg; Degland and Gerbe mention an adult male, now in the Lille Museum, taken in an exhausted state near Verdun, on June 15th 1854; and a third, now in the Museum at Florence, was captured on October 28th 1862 in Piedmont, in a trout-net.

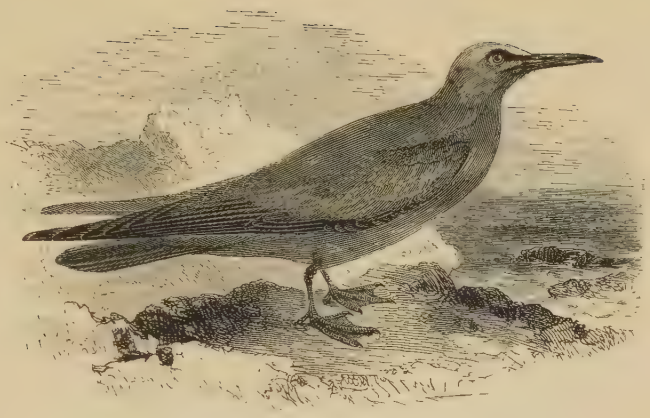
The Sooty Tern has been known to occur about a dozen times as far north as the New England States, and it occasionally visits the Bermudas; but it is not found in any numbers on the American sea-board above Florida and the Bahamas, though southward it is generally distributed throughout the West Indies, especially on the low islands known as 'Cays.' In the Pacific

it breeds from Lower California to Polynesia, where the coral 'atolls' and other islands offer numerous localities suited to its habits; there are many well-known stations on the reefs which fringe Australia; and the species can be traced through the Eastern Archipelago to China and the south of Japan. It occurs in Ceylon, the Laccadive Islands, the Persian Gulf, the Red Sea, and through the Indian Ocean, by way of the Chagos group and the Mascarene Islands, to Madagascar. Off the west of Africa a small number frequent St. Helena, and immense colonies, which have been repeatedly described as 'Wide-awake Fairs,' are found on that great volcanic cinder-heap, the Island of Ascension.

Normally each female only incubates a single egg at a time, but in the same slight hollow in the soil which serves for a nest two or even three eggs have been found. At Ascension these are collected for eating, 200 dozen being sometimes picked up in a morning. The colour is pinkish-cream or bluish-white, with an endless variety of lavender and chestnut-red blotches; the shell being smooth, whereas in the egg of the Noddy—a bird often found breeding in the same localities—the surface is of a rough chalky nature: measurements 2 by 1·5 in. As soon as the young can fly, they and their parents go off to sea, where they feed upon small fish and marine animals. According to some observers, this species is crepuscular in its habits.

The adult has the forehead, eye-brows, sides of the neck, and entire under-parts white; loral streaks, crown and nape deep black; remaining upper-parts chiefly sooty-black, the two long outer tail-feathers being white on their outer webs; bill, legs and feet black. Length 17 in. (bill 2·1, tail 7·5), wing 11·75 in. The young bird has the under-parts sooty-brown; and the upper surface of a darker hue, with whitish tips to nearly all the feathers except the primaries.

I have examined a specimen of the Smaller Sooty Tern, *S. anæstheta* of Scopoli, which is said to have been captured on one of the light-ships at the mouth of the Thames in September 1875 (Zool. 1877, p. 213), but the evidence is slightly imperfect. This inter-tropical species is browner on the upper-parts, has a longer white stripe over the eye, a greyer tint on the neck, and less fully-webbed feet than the above; while the young bird has white under-parts, even as a nestling. A third member of this group, *S. lunata*, has a slate-grey back, and inhabits Oceania.



THE NODDY TERN.

ANOUS STÓLIDUS (Linnæus).

Two examples of this pelagic species are recorded by Wm. Thompson (Mag. Zool. & Bot. i. p. 549) as having been obtained between the Tuskar Lighthouse and the Bay of Dublin, about the year 1830, and one of these is in the Science and Art Museum of the above capital. Some later reports of birds which were "identified on the wing" as belonging to this species, either refer to the Arctic Skua or are unworthy of serious consideration. In 'The Zoologist,' for 1897, p. 510, is a record of a specimen said to have been shot "on the Dee marshes about six years ago."

The Noddy is, like the Sooty Tern, of general distribution throughout the tropics; some of its best known breeding-grounds being in the Tortugas group off the coast of Florida, the Bahamas, and many of the 'Cays' of the West Indies, as well as on both sides of Central America. In the Atlantic it was found by the 'Challenger' Expedition residing as far south as the storm-beaten Inaccessible Island, off Tristan da Cunha; while in the Pacific it occurs from Mexico to the Galápagos group. On the islands and coasts of Polynesia and Australia it is found breeding in most of the localities mentioned when treating of the Sooty Tern, though often slightly apart from that species; and it occurs throughout the inter-tropical Asian and African seas, breeding in the Laccadives, the islands of the Red Sea, St. Helena, Ascension, and in other places.

Contrary to the habit of typical Terns, this and most of the

members of the group of Noddies make a nest which is often of large size, and is built of dry grass, bits of sea-weed, twigs, fish-bones &c., not interwoven but laid in a heap, with merely a slight cavity for the egg. The top of a cocoa-nut tree or the outer branches of mangroves are sites often selected, while in some places the nests are on shelving rocks beneath overhanging cliffs, or, more rarely, on patches of sand and grassy slopes. Audubon, who was responsible for an unconfirmed statement that the Sooty Tern habitually laid three eggs, also asserted that the complement of the Noddy was the same, but observers in all parts of the tropics are unanimous in stating that this species never incubates more than one egg. The shell has a somewhat dull and rough surface, and is ruddy-white or buff in colour, sparsely blotched and freckled with reddish-brown : measurements 2 by 1·4 in. The yolk is bright yellow, whereas in the egg of the Sooty Tern it is deep orange-red. In the northern hemisphere breeding takes place in May or June, but in the southern tropics there is great irregularity, and fresh eggs may be found from September to January. As soon as the young are able to fly the birds disperse over the ocean, and when fatigued they frequently settle on vessels, exhibiting a stupidity or indifference which has procured for this species its trivial, as well as its scientific, name. The food consists of small fish, molluscs, medusæ &c.

The adult has the forehead and crown lavender-grey ; lores black ; hind-neck and throat lead-coloured ; breast and belly dark brown ; upper-parts sooty-brown, darker on the wings ; bill black ; legs and feet reddish-brown, with yellowish fully developed webs. Length 16 in., wing 10·5 in. In less mature birds the lores and the grey colours are duller. The young bird has the forehead and crown greyish-brown, while both upper and under-parts are dull umber. In this and other members of the group the tail is graduated, and not forked, the outer pair of tail-feathers being always shorter than the next pair. Three smaller and distinct species of Noddy are also found within the tropics ; while in Polynesian and Australian waters there are yet two others, very closely related, but characterized by their nearly uniform grey colour and still smaller size.

Owing to a practical joke, which afterwards became a fraud, Thompson was led to include the Swift Tern, *S. bergii* of Lichtenstein (*S. velox* of Rüppell) in his 'Birds of Ireland.' It is a purely tropical species, and has not even wandered to the South of Europe.

SABINE'S GULL.

Xéma sabínii (Joseph Sabine).

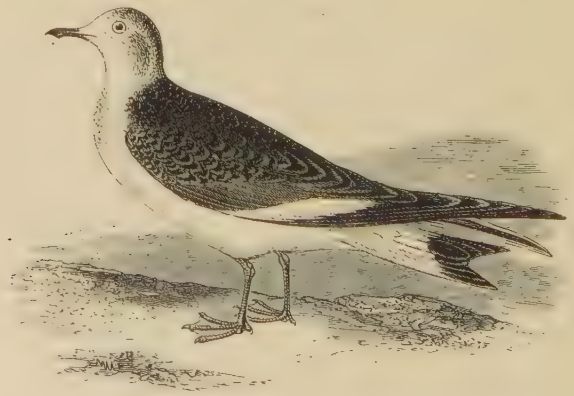
This small fork-tailed Gull is one of the species which were first recognized in the United Kingdom by Thompson, who described an immature example shot in Belfast Bay in September 1822. Since that date more than a dozen specimens have been taken in Ireland; while many others are on record from various counties of England and Wales, with a few from Scotland. All of them have occurred from August to December, and, with the exception of six in summer-plumage obtained or observed, respectively, in Yorkshire, the Island of Mull, Kent, Hants, Cornwall, and on the coast of East Lothian, they have proved to be young birds.

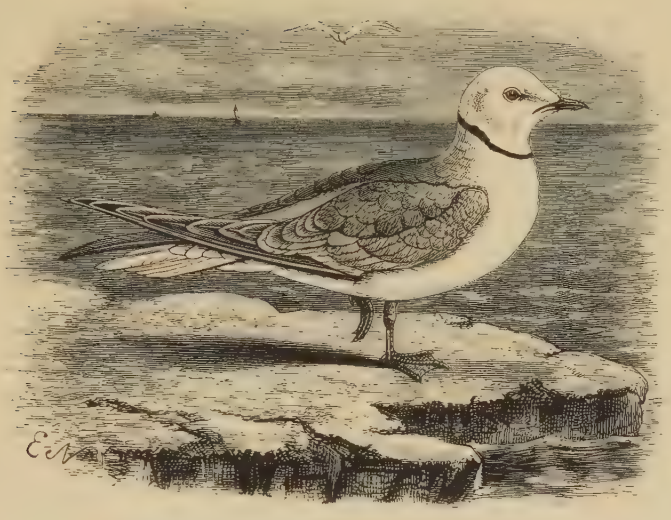
This almost circumpolar species was not noticed in Norway before October 1886, nor until 1892 in Holland, but it has long been known as a visitor to the islands and shores of the North Sea and the north of France, while stragglers have reached Switzerland and even Austro-Hungary. It was discovered on the Expedition of 1818 in search of a North-west passage, by the late Sir Edward Sabine, who found it nesting in lat. 75° 29′ on the west side of Greenland; and it is now known to breed throughout the Arctic regions of America, from Baffin Bay to Alaska. Thence it can be traced across the high latitudes of Eastern Siberia as far as the Taimyr Peninsula, where Middendorff obtained its eggs. It has not yet been recorded from Novaya Zemlya or Franz Josef Land; but

Sabine shot two in breeding-dress in July 1823 in the Spitsbergen group, where birds were recognized by Parry's Expedition in 1827; and the species is a visitor to Jan Mayen. In the Atlantic it has been met with as far south as the Bermudas and Texas; while in the Pacific it not only crosses the equator, but goes as far as lat. 12° S., nearly adult specimens in winter-plumage having been presented to me by Admiral Markham, from Callao Bay, where Staff-Commr. MacFarlane afterwards found it in swarms during the month of February. It thereby over-laps the habitat of the far larger *X. furcata*, another fork-tailed species, which has its head-quarters in the Galápagos Islands.

The eggs, 2 in number, are laid on the bare ground, or on dry tussocks in marshes near the sea, and frequently in proximity to those of the Arctic Tern, with which bird this Gull often associates. They are brownish-olive in colour, with somewhat darker blotches near the larger end—much like those of the Arctic Skua in miniature: measurements 1·7 by 1·3 in. The nestlings, hatched towards the end of July, are at first mottled with brown and dull yellow. The food consists of small fish, crustaceans, worms, insects and their larvæ; the note is harsh and clicking.

The adult in summer-plumage has the head and neck lead-grey, encircled by a black collar; quills chiefly black, broadly tipped with white; tail and under-parts white; mantle slate-colour; length 13 in.; wing 10·75 in. In winter the crown and forehead are white, but there is more or less black on the nape. The young bird in the plumage of the first autumn (figured below) is ash-grey on the upper-parts, barred with brown and dull white; when still younger it has a dark gorget.





THE WEDGE-TAILED GULL.

RHODOSTÉTHIA RÓSEA, Macgillivray.

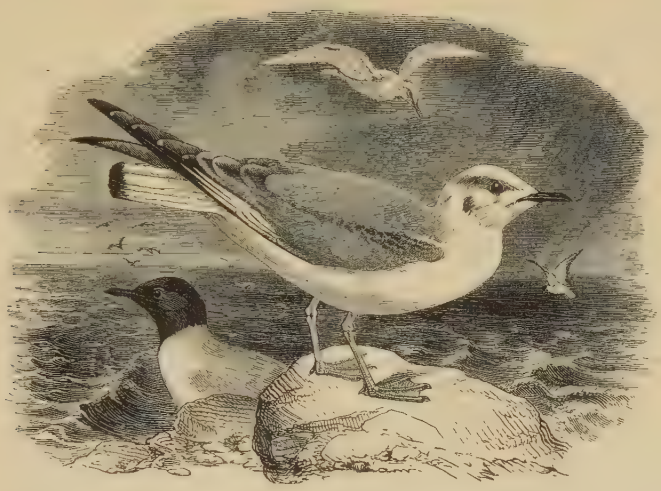
An example of this Gull in winter-plumage passed through the hands of Graham, the notorious bird-stuffer of York, and was said to have been shot near Tadcaster in December 1846 or February 1847 ; it was afterwards purchased by the late Sir Wm. M. E. Milner, and is now in the Museum of Leeds. According to several experts, it presents the appearance of a specimen which has been mounted from a relaxed skin, and not direct from 'the flesh' ; but inasmuch as this Arctic species wandered to Heligoland in February 1858, and to the Færoes in 1863, there is no inherent improbability of its occurrence in Yorkshire, and it has been generally admitted to the British list.

This beautiful rose-breasted bird is often called Ross's Gull, after the late Sir James C. Ross, who discovered it on June 23rd 1823 on Melville Peninsula, during Parry's second Expedition, while it was subsequently observed at Felix Harbour, Boothia ; and several examples were seen on Parry's boat-voyage to the northward of Spitsbergen, as well as in Hinlopen Strait. At long intervals, six specimens were obtained in Greenland prior to 1885, and two immature birds in the Mainz Museum are said to have come from Kamchatka. The Austro-Hungarian Expedition procured one on Franz Josef Land, and Baron von Nordenskiöld's party in the 'Vega' shot one

on the Chukchi Peninsula, Bering Strait, in July 1879. In October of the same year, Newcomb, naturalist to the ill-fated 'Jeannette,' killed eight off the north-east of Siberia, and during the fearful march of the starving, shipwrecked crew to the Lena, he saved three skins by carrying them inside his shirt beneath his belt; and a few others have since been obtained at the mouth of the above river. The American Expedition to Point Barrow in Alaska found this species during September and October of the years 1881 and of 1882 in large numbers, pointing to the probability of there being an important breeding-place somewhere to the northward of Wrangel Island. An adult was obtained on Bering Island in December 1895; Mr. E. Nelson procured a bird at St. Michaels, Alaska; and an example in breeding-dress, one of two sent from Discö, Greenland, in 1885, was presented by the late Mr. Seebohm to the British Museum. In August 1894, Dr. Nansen's party in the 'Fram' obtained eight birds of the year in about lat. 81° N. and long. 130° E.; while in July and August 1895 the intrepid explorer observed many adults, especially round four islands named Hvitenland, in lat. 81° N. and long. 63° E., doubtless a breeding-place.

Statements that the egg had been taken with the Discö birds in 1885 (P.Z.S. 1886, p. 82; Auk 1886, p. 273) are unconfirmed, and the circumstances, description, and a coloured photograph of the egg in question, all indicate that it was probably that of Sabine's Gull. Until the above appearance of flocks at Point Barrow, only 23 specimens of the bird were ascertained to be in existence. The flight is described as peculiarly graceful and wavering; the cry is compared to that of the Wryneck by Dr. Nansen. A bird which he shot vomited two shrimps.

The adult in summer has head and neck white, with a few black feathers near the eye, and a narrow collar of the same colour; otherwise the head, neck, and entire under-parts are white, suffused with rose-colour; mantle pale pearl-grey; outer web of first primary black, secondaries and inner primaries grey, tipped with rosy-white; tail wedge-shaped and pure white; bill black (even smaller than represented in the engraving); legs and feet red. Length 13·5 in.; wing 10·25 in. In winter there is no black collar. By September 21st the young bird is pearl-grey on the crown and nape as well as on the mantle, though the wing-coverts, inner secondaries, and rump are barred with buff-tipped umber-brown; the three outer primaries are black on both sides of the shafts, and all up to the 7th are tipped or barred with the same colour; the central and projecting feathers of the tail are terminally banded with blackish-brown.



BONAPARTE'S GULL.

LÁRUS PHILADÉLPHIA (Ord).

It is to Thompson again that we are indebted for the first notice of the occurrence of this species in the British Islands; he having correctly identified an example obtained near Belfast on February 1st 1848, which was brought to him before it was skinned. In Scotland an adult, exhibited at a meeting of the Zoological Society of London in 1884, was shot on Loch Lomond about the end of April 1850, by Sir George H. Leith-Buchanan. In England, an immature bird was killed in Falmouth Harbour on January 4th, and another at Penryn—close by—on January 10th, 1865; one was shot early in November 1870 at St. Leonards in Sussex; and lastly, a young example was obtained near Penzance on October 20th 1890 (Zool. 1891, p. 35).

Gätke informed me that he obtained an adult on Heligoland in the severe winter of 1845, but otherwise there appears to be no authentic record of the appearance of this bird in Europe, outside of the British Islands. In summer Bonaparte's Gull is widely distributed over the lakes and wooded regions of the Fur countries of North America, from a little within the Arctic circle down to Manitoba; but it does not visit the ice-fringed shores to the northward and is of very rare occurrence in Bering Sea, though not uncommon along the Yukon and on the marshes at the mouth of that great river. On migration it frequents the Pacific coast as far

south as San Pedro in California, as well as many of the inland waters of the United States, while on the east side it is abundant and of regular occurrence down to South Carolina, and occasionally visits the Bermudas; it is, however, rare on the Gulf side of Florida, and, except as a wanderer to the Bahamas, has not yet been obtained in the Antilles. With the first genial weather in April and throughout the greater part of May a succession of birds passes northward; the earlier ones being adults, while the later arrivals are birds of the previous year, some of which linger on the coast-marshes all the summer. Richardson, who found this species breeding in the vicinity of Great Bear Lake, says that it is seen there as soon as the first pools are thawed, and before the ground is denuded of snow.

The above explorer, as well as Messrs. R. MacFarlane, Kennicott and others, state that Bonaparte's Gull builds in colonies, placing its nest, which is composed of sticks, grass, moss &c., on the branches of some bush or tree—often a spruce-fir—at elevations varying from four to twenty feet; in some districts, however, it appears to breed in marshes, and, presumably, on the ground. The eggs, 2–3 in number, are dull olive-colour, spotted, scrolled and zoned with brown: measurements 1·9 by 1·4 in., though there is considerable variation in a large series. This species undoubtedly alights upon trees. The food consists of small fish, crustaceans, insects and their larvæ; the flight is buoyant and Tern-like; and the note is described as a "sharp but rather faint squeak."

The adult in summer has the hood slate-black; mantle pearl-grey; tail and under-parts white; first primary white, except on the outer web and across the tip, where it is black; the other quills subterminally barred with black, and white or greyish on the inner webs; bill black; legs and feet orange-red. The sexes are alike in plumage, and the statements of Audubon and Bonaparte that the female has a brown hood are as inexplicable as they are erroneous. In winter the head is nearly white. The bird figured on the rock is an immature specimen in its first winter. The transitional stages are similar to those in other Gulls; but at all ages this species may be distinguished by the white margins to the inner webs of the two outer primaries. Length 14 in.; wing 10·25 in.

The American Laughing Gull, *L. atricilla*, was added to the British list by Montagu, in error, as indicated by his description of the bird obtained at Winchelsea. This species is stouter than our *L. ridibundus*, has a blacker hood and darker mantle, and may always be distinguished by its black outer primaries.

THE LITTLE GULL.

LARUS MINÚTUS, Pallas.

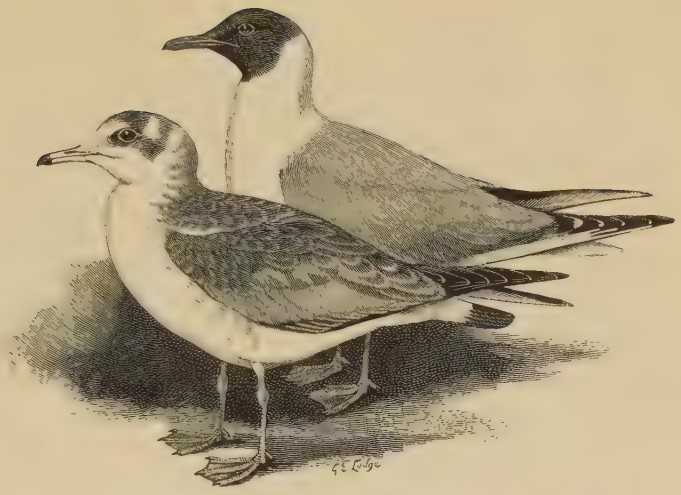
This species, the smallest member of the genus, was introduced to the British list by Montagu, who described and figured a young bird shot near Chelsea prior to 1813. Subsequently specimens have frequently been obtained, while in 1866, and again in 1868, Little Gulls appeared on the coast of Yorkshire in numbers till then unprecedented; though these were far exceeded along the entire east side of England during the winter of 1869, and again after the heavy easterly gales of February 1870, when the proportion of adults to young birds was unusually large. This Gull has also occurred along the Channel as far as Cornwall, but it seldom visits Wales and Lancashire, though more frequent of late years in the Solway district. Along the west of Scotland it has appeared at intervals as far northward as Skye and North Uist; while on the east, as might be expected, the bird is more frequently met with, and has been

recorded (once in May) from the Border to the Shetlands. To Ireland it is an infrequent visitor in autumn and winter.

The Little Gull wandered to the Færoes in February 1886, and has occasionally visited the south of Norway; but, according to Nilsson, it formerly bred in Gottland, and occurs annually on the coasts and islands of the Baltic. Its nearest nesting-places are now probably those in the morasses of Esthonia, and between Lake Ladoga and Archangel; but large colonies are to be found among the swamps of the Ural, and the bird remains until somewhat late in spring in Southern Russia and the Black Sea district, though not known to breed there. On migration and in winter it visits the inland waters and the coasts of Europe down to the Mediterranean, as well as the northern shores of Africa from Morocco to Egypt. In summer it is found across temperate Asia to the Sea of Okhotsk; but, with the exception of a bird shot by Col. Irby in Oudh in January 1859, it has not been recorded from India. An immature example was obtained on Long Island, New York State, about September 15th 1887 (Auk 1888, p. 171).

The late W. Meves of Stockholm, who found a large colony of "Schieks"—as the Russians call the Little Gulls—near Lake Ladoga, described the nests as being placed on almost floating islets of tangled plants, and built of leaves and grass. The eggs, usually 3 but occasionally 4 in number, are olive-green or brownish, rather minutely spotted and sparsely blotched with umber: measurements 1·65 by 1·1 in. Both parents incubate. The stomachs of the birds examined by Meves contained chiefly small fish, insects being found only in a few.

The adult in summer (figured in the foreground) has the head and upper neck deep black; mantle pale grey; primaries grey, broadly edged with white and devoid of dark bars; the under-side of the wing black—a conspicuous characteristic when the bird is flying; neck and tail white; breast and belly pinkish-white; bill reddish-brown; legs and feet vermilion. In winter the head is white, more or less streaked with ash-colour on the nape, as shown in the hindermost figure. Length 11 in., wing 8·75 in. A young bird (the central figure), shot in November, had the upper parts mottled with dark brown, and a band of the same colour at the tip of the tail; primaries sooty on both webs next the shafts and white on the remainder of the inner webs; under-wing white; bill blackish; feet yellowish-pink. The nape becomes dark grey the first spring, but the dark markings on the shoulders and tail remain till after the second moult. Mr. J. H. Gurney has recorded a white variety.



THE BLACK-HEADED GULL.

LARUS RIDIBÚNDUS, Linnæus.

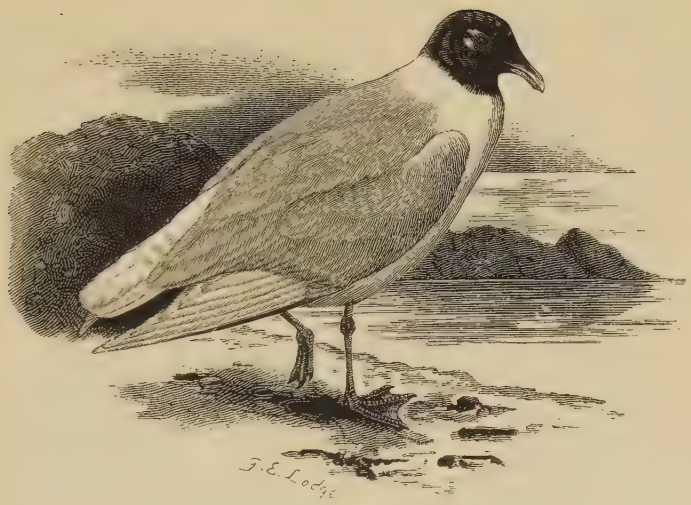
This species—which might be more appropriately called the Brown-headed Gull, for the hood is certainly not black—is generally distributed throughout the year on the flat portions of our shores, resorting in spring to marshy situations near the sea-coast and even more to inland meres. Drainage, cultivation, commerce (as in the case of Fleetwood) and other causes, have led to the destruction of many 'gulleries,' though the birds have simply betaken themselves to other situations, and are probably as numerous as ever. Of late years they have visited the London waters in numbers, for the food supplied in winter. In the south of England the most western colony is, up to the present, near Poole in Dorset; while there is one in Romney Marsh in Kent; two, as Mr. Miller Christy tells me, are to be found near the coast in Essex; and there are two or three in Norfolk, including the well-known Scoulton Mere. One important settlement is near Brigg in Lincolnshire, and there are smaller ones in Yorkshire; those of Norbury and Aqualate Mere in Staffordshire have been celebrated for centuries; in Wales there are several; and large colonies exist on Walney Island in Lancashire, in 'Lakeland' and Northumberland. In Scotland they are even more plentiful, some of the largest being near Wigton and Glasgow, at Inchmoin on Loch Lomond, and in Perthshire, as well as in Moray, while smaller ones are found from

the Borders to the Shetlands; and a stray bird has even been obtained in St. Kilda. In Ireland this species is very abundant and widely distributed, and there is even a colony on one of the Blasquet Islands, the most western land in Europe to the south of lat. 57°.

The Black-headed Gull nests in one locality in the Færoes, and sparingly in the south of Norway and Sweden, but in Russia it extends to Archangel. Southward it is abundant and widely distributed over the rest of Europe, down to the Mediterranean, where it breeds as far south as the island of Sardinia; and it also nests in Asia Minor. In winter it ascends the Nile to Nubia, visits the Red Sea, and ranges from Palestine to the Persian Gulf, Northern India, and along the coast as far as the Bay of Bengal. On the elevated mountain lakes of the great Tibetan plateau its representative in summer is the larger *L. brunneicephalus*, which has a paler brown hood and a different wing-pattern; our bird, however, inhabits the temperate portions of Siberia as far as Kamchatka in summer, visiting Japan, China, and the Philippines during the cold season.

The nests, built of sedge, flags &c., are placed on clumps of rushes, grass-tussocks, masses of bog-bean, or on the bare ground; the eggs, normally 3 in number, though 4 are sometimes found, vary from olive-brown to pale green, or even blue and pinkish-buff in ground-colour, blotched with black and dark brown: measurements 2·2 by 1·5 in. In ordinary seasons laying begins soon after mid-April, the eggs being systematically collected for eating in many places until some time in May. Incubation lasts fully three weeks (W. Evans). To the farmer this Gull is a great benefactor, devouring large numbers of grubs and worms, and capturing cockchafers and moths on the wing; while it eats bread freely in winter, and is, in fact, almost omnivorous. From its hoarse cackle it is often called the Laughing Gull; also the "Peewit" or "Peewit-Gull." The fact that this species commonly alights on trees and bushes has been known to observant naturalists for the last half-century or longer.

The adult male in spring has a dark brown hood; french-grey mantle; white tail and under-parts, the latter with a pink tinge; the outer primaries being characterized by white centres and dark margins to the inner webs. At the autumn moult the brown hood disappears, but is sometimes reassumed as early as December. Length 16 in., wing 12 in. In the young bird the outer primaries are chiefly dark brown, but at an early period a streak of white, which increases in size with the age of the feather, makes its appearance along the middle of the inner web.



THE MEDITERRANEAN BLACK-HEADED GULL.

LARUS MÉLANOCÉPHALUS, Natterer.

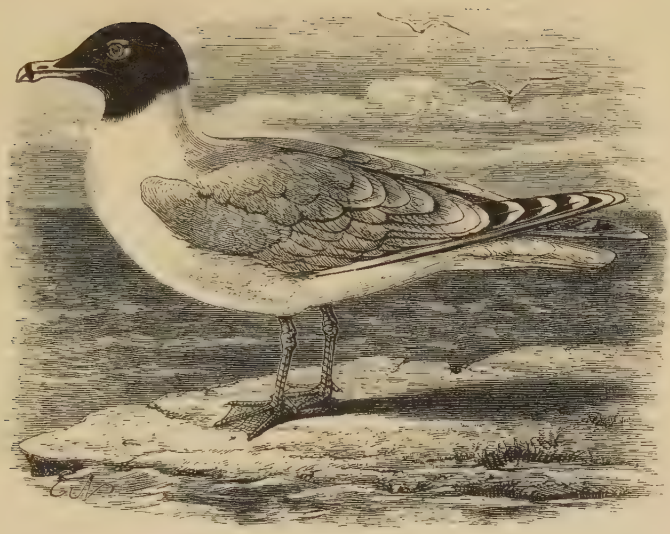
On December 26th 1886, Mr. G. Smith of Great Yarmouth informed me that he had just received an adult example of this species in winter-plumage, shot on Breydon Broad; the bird was examined in the flesh by Messrs. Southwell, J. H. Gurney and others, and I subsequently exhibited it at a meeting of the Zoological Society of London. This is the first authenticated instance of the occurrence of the Mediterranean Black-headed Gull in the British Islands. There is, however, an immature specimen in the British Museum, which is said (and, I believe, with truth) to have been shot in January 1866, near Barking Creek on the Thames; but this was not correctly identified until I saw it in 1871, and, considering the possibility of some accidental exchange during the interval, I did not include the species in the 4th edition of 'Yarrell.' Its characteristics were, however, described in that work, and the result was the identification of the Breydon bird.

I have seen examples of this Gull from the mouth of the Somme in the north of France, whence a southerly gale would soon bring it to our coasts, and it is found nearly every year at the mouth of the Gironde; while there may be some breeding-place along the low shores to the southward, as about a score of birds, unmistakably of this species, were observed during the first week of March 1882 at

St. Jean-de-Luz, ten miles south of Biarritz. In the latter part of May 1868 I saw (from the sea) numbers on some marshes in the south-west of Spain, and birds have been brought to me from the islets at the mouth of the Guadalquivir, where, on May 9th 1883, Mr. Abel Chapman shot a bird; but eggs from that locality, originally ascribed to this species, have proved to be those of the Gull-billed Tern. Many breeding-places doubtless exist in the Mediterranean, as the bird is plentiful there, but none are known until the Gulf of Smyrna is reached; there are also some in the Dobrudsha district of the Black Sea. Southward this Gull occurs in Cyprus, as well as on the coast of Egypt. Northward it has been found up to Hungary, where Baldamus stated, in 1851, that he had found one nest, and I have seen a young bird from that country; while wanderers have occurred on several of the large Swiss lakes.

Gonzenbach obtained many eggs of this Gull in the Gulf of Smyrna, and Mr. Cullen trapped several birds for identification in a colony on an islet in a lagoon of the Dobrudsha. The nests were of sea-weed, like those of the Slender-billed Gull, *L. gelastes*, a species which was breeding in far larger numbers in the same locality. The 2–3 eggs show little or no greenish tint, but are dull white or stone-colour, blotched and streaked with dark brown: measurements 2·2 by 1·4 in. Mr. Cullen stated that the birds, which were very shy, fed upon water-beetles; and M. Alléon, who found colonies in the same district, says that this species is less aquatic and more of an inland feeder than other Gulls.

The adult in breeding-plumage has the head jet-black; mantle pearl-grey, of about the same tint as in *L. ridibundus*; primaries white terminally and delicate grey above, with merely a narrow black streak along the outer web of the first quill; tail and under-parts white; bill coral-red with a darkish band in front of the angle; legs and toes red. Length 15·5 in.; wing 11·75 in. Birds which have assumed the black hood for the first time exhibit black streaks next the shafts of primaries 1–3 and black bars on 1–5, until the following moult. In autumn the head is streaked with dark brown, most thickly about the eye and the ear-coverts. In the bird of the year the first five primaries have the outer webs, the shafts, and the greater portion of the inner webs dark brown on both upper and under sides, with nearly white edges; whereas in the young of *L. ridibundus* the shafts and contiguous portions of the inner webs are white, with dark margins. Seen from below, when the birds are flying, these distinctions are very noticeable; while the robustness of the bill in *L. melanocephalus* is a marked feature.



THE GREAT BLACK-HEADED GULL.

LARUS ICHTHYÆTUS, Pallas.

An example of this south-eastern species, which almost attains the dimensions of our Great Black-backed Gull, was recorded by Mr. F. W. L. Ross (Ann. & Mag. N. H. (3) iv. p. 467) as having been shot off Exmouth, about the end of May or early in June 1859, when in company with a flock of commoner members of the family. This bird, now in the Exeter Museum, is an adult in summer-plumage; its history appears to be satisfactory, and it cannot be suspected of having escaped from confinement, for no instance was known of this species having been in captivity until an adult was brought to the Zoological Society's Gardens in June 1891.

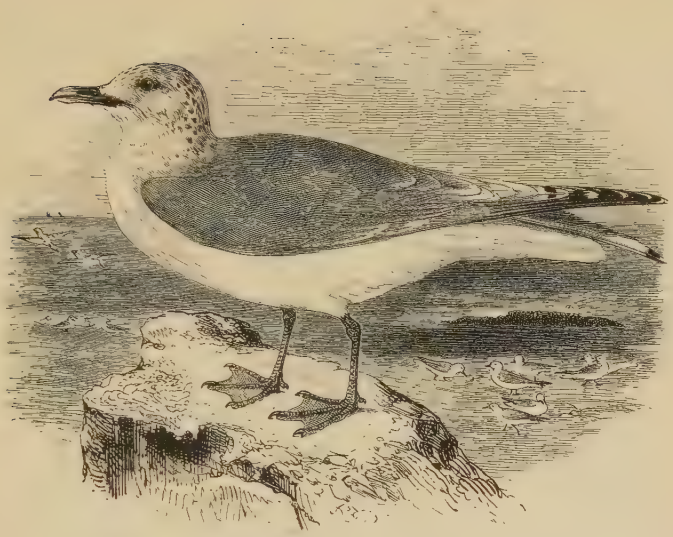
Even in the Mediterranean the Great Black-headed Gull is only found in the extreme eastern portion known as the Levant, where it has been met with in Cyprus, and on the shores and lakes of Palestine. It is common in Egypt and as far up the Nile as Nubia; while it occurs in the Red Sea, the Persian Gulf, and thence along the coast line to India. In the Black Sea it is decidedly rare; but it breeds in great numbers on the Seal Islands in the Caspian and on the low-lying shores of that sea, as well as on the lakes of Turkestan; while Dr. Finsch noted its arrival on the Ala-

Kul (a little to the east of Lake Balkash) on May 9th, and on the Saisan-Nor early in June. Prjevalsky observed it in long. 100° E. on the Koko-nor, an elevated lake in the mountain-range between Mongolia and China; and it is probably found throughout Tibet in summer, as it passes over Gilgit on its way to India. There it frequents the rivers, lakes and coasts, down to Ceylon and Burma, during the cold season. It is unknown on the Amur or along the sea-board of China, while Cassin's record from Japan is the result of an erroneous identification.

Details are scarce respecting the breeding-habits of this Gull, though, through the Moravian colony at Sarepta on the Lower Volga, numbers of its eggs have been received; these, which are laid on the bare sand, are 3 in number, and in colour stone-drab, boldly streaked and blotched with umber and black: measurements 2·95 by 2 in. The cry is described as a harsh and raven-like croak; the food consists of fish, crustaceans, locusts, reptiles &c.

The adult in breeding-plumage has the head jet-black; mantle of a darker grey than in *L. ridibundus*; secondaries with broad white tips, which form a conspicuous alar bar; primaries chiefly white, barred with black from the 1st to the 5th and slightly on the 6th; tail and under-parts white; bill orange-yellow, red at the angle and zoned with black; legs and feet greenish-yellow, the webs orange. There is considerable variation in size, and females are often so much smaller than males as to have given rise to the belief that they belonged to a distinct species; length of a male 26 in., wing 19 in. In winter the head is merely streaked with blackish. The young bird is mottled with brown on the upper-parts, and the primaries are dusky-brown. From young members of the Herring-Gull group it may be distinguished by the white margins which extend for a long way up the outer webs of the secondaries, as well as by the uniformity in the dark band which crosses the tail: this band being mottled and broken up in other species. The nestling differs from that of almost all the Gulls in being of an unspotted greyish-white above, and clearer white below.

The Gulls with hoods have been separated from the rest under various generic names. The least objectionable is *Chroïcocephalus* of Eyton, based upon "coloured hood, small size, and more naked tibiæ"; but as the second qualification did not suit the above gigantic species, Kaup (who was at least logical) created for it the genus *Ichthyaëtus*. No term can be more inadmissible than *Xema*, as it should only be applied to a Gull with a forked tail.



THE COMMON GULL.

LARUS CÁNUS, Linnæus.

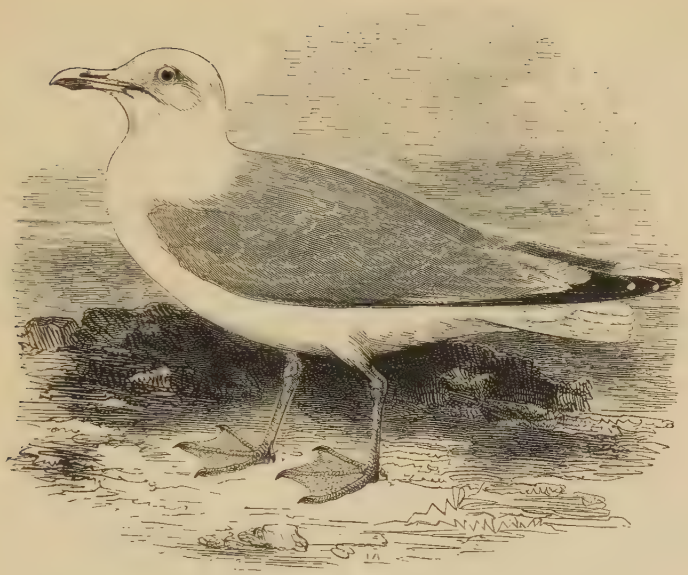
The trivial name of this species has led to many errors as regards England and Wales, though the bird is certainly "common" on the coasts from autumn to spring, and is frequently seen inland. In April, however, the adults pass northwards, and I am not yet aware of a single breeding-place south of the Border; but as this Gull nests on the Scottish side of the Solway, an exception may, perhaps, have to be made in time to come as regards England in that neighbourhood. Northward the "Blue Maa," as it is appropriately called from its colour, is found breeding in abundance on the coasts as well as the fresh-water moorland lochs of Scotland, including the Hebrides, Orkneys and Shetlands; but it is comparatively rare in summer along those portions of the east coast which are precipitous, and unsuited to its habits. In Ireland the "common" Gull of the peasantry is generally *L. ridibundus*, but since Mr. R. Warren found a small colony on Lough Talt, co. Sligo, in the summer of 1855, other breeding-places have been discovered in cos. Mayo, Donegal and Kerry; while in winter the bird is plentiful by the sea.

The Common Gull is only a spring visitor to the Færoes, and of rare occurrence in Iceland; but it is numerous in Scandinavia up

to the North Cape, and in Northern and Central Russia. During the colder months it occurs on the shores, lakes and rivers of the rest of Europe, and on both sides of the Mediterranean basin, to Palestine and the Suez Canal, as well as in the Nile valley and the Persian Gulf. Birds which are, as a rule, larger and darker on the mantle than western examples, inhabit Siberia as far as Kamchatka in summer, and these frequent Japan and China in winter. From the Pacific to Great Bear Lake, this Gull is represented in North America by a slightly smaller species, *L. brachyrhynchus*; but throughout the rest of that continent we find *L. delawarensis*, a rather larger bird, with a paler mantle and a doubly zoned bill. An immature example of *L. canus* was, however, obtained in Labrador on August 21st 1860, and is now in the Museum at Washington.

Grassy islands and sides of lochs, or slopes facing the sea and often not far above high water, are favourite resorts; and in such this species usually breeds in colonies, making a somewhat large nest of sea-weed, grass, heather &c., and beginning to lay in the first half of May. The eggs, normally 3 in number, are olive-brown in ground-colour, spotted and streaked with blackish; but pale blue, straw-coloured and light green varieties are not uncommon: measurements 2·25 by 1·5 in. As a rule this Gull does not go far from land, and owing to its being one of the first to seek the shore on the approach of coarse weather it has been made the subject of many rhymes and poetical allusions. It feeds on small fish, molluscs, crustaceans &c., and may frequently be seen picking up grubs on the furrows in company with Rooks, while it will sometimes eat grain, small birds, and "cheepers." It has often been seen on the tops of trees, in Germany, Norway, Siberia, and elsewhere.

The adult in summer has the head, tail, and entire under-parts white; mantle of a deeper grey than in any other medium-sized Gull except the Kittiwake: primaries comparatively long, the three outer pairs being dull black on the lower portions, with large white 'mirrors' near the tips on the 1st and 2nd, and even on the 3rd in mature birds; in the other quills pale grey predominating and the black merely forming a bar, while all except the 1st quill are broadly tipped with white; bill greenish at the base, rich yellow towards the point; legs and feet greenish-yellow in summer, darker in winter. Length 17–18·5 in.; wing 14–15 in. In winter the head and neck are streaked and spotted with ash-brown, as shown in the illustration. In the young bird the primaries and the broad tail-band are dark brown; the under-side of the wing is mottled with brown, whereas in *L. ridibundus* it is greyish-white.



THE HERRING-GULL.

LARUS ARGENTÁTUS, J. F. Gmelin.

THE YELLOW-LEGGED HERRING-GULL.

LARUS CACHÍNNANS, Pallas.

The Herring-Gull is the most widely distributed member of its family on the coasts of the British Islands, breeding wherever precipitous rocks or isolated 'stacks' afford a suitable refuge, while it is almost the only Gull that nests on the chalk-cliffs of the Channel. Occasionally it resorts to low marshy ground, and colonies may be found on islets in lochs in some parts of Scotland, though such situations are usually left to the Black-backed and Common Gulls.

This species occurs in Greenland, and has been obtained on Jan Mayen, but not in Iceland. It is abundant on the coasts of Scandinavia and the Baltic, and immense numbers nest on some of the low Frisian Islands, especially on Sylt, where from 40,000–50,000 eggs are taken for eating in a season. Southward it ranges down the western sea-board of Europe, stretching out to the Azores. In America it has been found on the coasts and inland waters, from the Parry Islands (lat. 75° N.) down to about 40° (breeding), and in winter to 20° N.

The nest, formed of herbage, is usually on the ledges of cliffs,

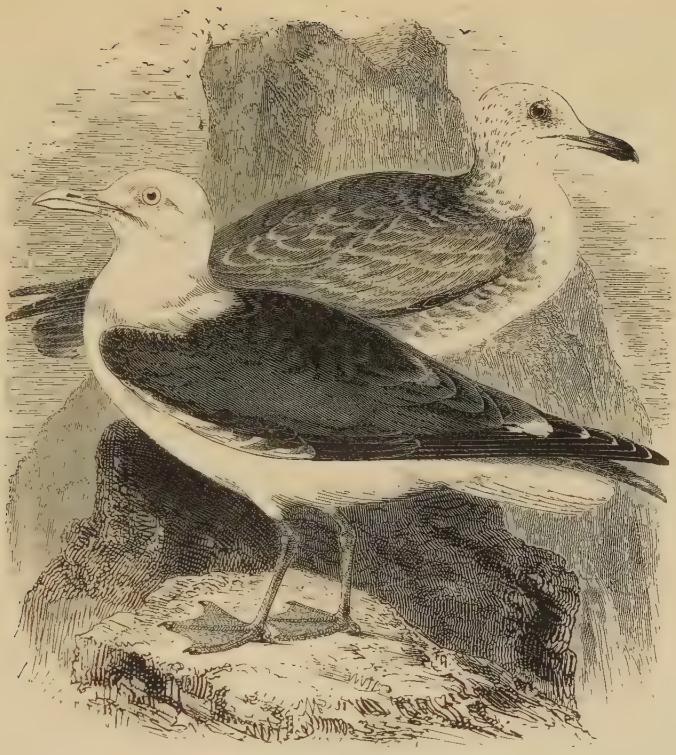
but may be on flat ground, or even on trees, as in some parts of North America, where the bird has been plundered by fishermen. The eggs, often laid by the first week in May, and up to 3 in number, are usually olive-brown, blotched and spotted with dark umber, but the ground-colour is not rarely green, pale blue, or reddish-buff: measurements 2·9 by 1·95 in. This species may sometimes be seen inland, searching for worms, slugs, grubs &c., and newly-sown grain; but its principal food is obtained along the shore or on the sea, and its trivial name is supposed to be owing to its habit of following shoals of herring-fry. Like other large Gulls, it is a great robber of eggs, and it has largely contributed to the decrease of the Gannets on Lundy Island.

The adult male in summer has the head, tail and under-parts white; mantle french-grey; secondaries tipped with white; outer primaries chiefly black, with white tips and large sub-apical 'mirrors,' while a pale grey 'wedge' runs down their inner webs, and increases in size on each successively, until the grey becomes the predominating colour; bill yellow, red at the angle; orbital-ring pale yellow; legs and feet flesh-coloured. Length 24 in., wing 17·5 in., tarsus 2·5, middle toe with claw 2·6 in. The female is smaller. In winter the head and neck are streaked with grey. The young are mottled with brown, and full plumage is acquired (at least in captivity) by the fifth year.

An example of the YELLOW-LEGGED HERRING-GULL, *Larus cachinnans*, Pallas, in the collection of Mr. Connop, of Rollesby Hall, Great Yarmouth, was shot on Breydon Water, on November 4th 1886 (Zool. 1897, p. 572). I have examined the specimen.

This species frequents the coasts of Europe from the Gulf of Gascony southward, Madeira (and probably the Azores), the Canaries and North-west Africa, the entire basin of the Mediterranean, the Black Sea, the Caspian-Aral region, and eastward to Lake Baikal (breeding); while in winter it visits the west side of Africa to Angola, the Red Sea, the Persian waters, and India to the Bay of Bengal.

In nidification and habits this Gull resembles *L. argentatus*. In plumage it differs in having a darker mantle, while the ring round the eye and the gape are bright orange-red, the yellow and red of the bill are very bright, and the tarsi and toes are brilliant yellow. Length 23 in., wing 18, tarsus 2·75, middle toe with claw 2·65 in. The young are like those of our Herring-Gull, but a distinctly yellow tint is noticeable on the tarsi and feet in the second year (*cf.* Cat. B, Brit. Mus. xxv. p. 268).



THE LESSER BLACK-BACKED GULL.

LARUS FÚSCUS, Linnæus.

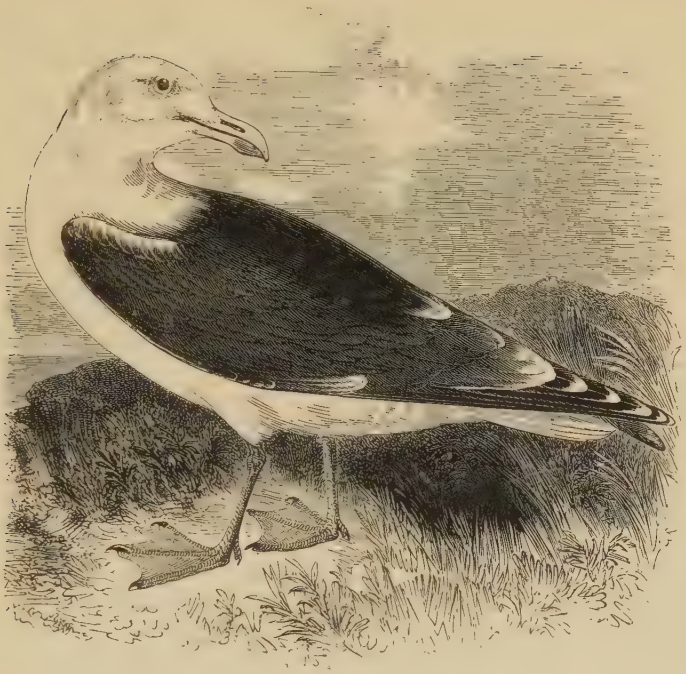
Though resident in the British Islands—except, perhaps, in the north—this species is far more local than the Herring-Gull in its distribution during the breeding-season, owing to its liking for grassy slopes or flat-topped and outlying islands, rather than for precipitous cliffs. In the south of England its nesting-places are almost confined to Devon and Cornwall; but several colonies exist in Wales and the Isle of Man; while on the 'mosses' and 'flows' of Cumberland it is so abundant that measures have to be taken to prevent its undue increase; and, though banished as much as possible from the moors of Northumberland, large numbers nest on the Farne Islands. In Scotland, closely-packed settlements may be found—far too plentifully for game-preservers—up to the northernmost Shetlands; and especially along the western coast within the shelter of the Outer Hebrides, whereas the Herring-Gull predominates on the far side of that group. In Ireland, where the species is found

throughout the year, the breeding-places are chiefly on the coast, though some are inland.

This Gull has not yet been obtained in Greenland or Iceland, but it is numerous during summer in the Færoes, as well as along the coast of Norway, whence it migrates southward, on the approach of winter, as it does from the shores of the Baltic. Small colonies exist on some of the Channel Islands and along the western seaboard of France, as well as off Morocco and in the Mediterranean; while in winter the bird visits the Canaries, and West Africa down to Bonny. Eastward it is found in Egypt, Nubia, the Red Sea (where it is said to be resident), and on the Persian Gulf. Northward, it seems to be very rare in the Caspian, and hardly known to the east of the line of the Dwina, though Mr. Popham obtained an immature example at Golchika on the Yenesei. Its representative, however, from the Dwina eastward as far as the Yenesei valley, is the Siberian River-Gull, *L. affinis*, a species which has been obtained (once) in South Greenland, and perhaps on Heligoland, while it visits Western Asia and Equatorial Africa in winter. This has a paler mantle than *L. fuscus*, and is distinctly larger.

The nest of the Lesser Black-backed Gull is made of grass, bits of sea-weed &c., and the eggs, sometimes laid by the first week in May, and 3 in number, are smaller on average than those of the Herring-Gull and exhibit greater variation, with a tendency to bluish-green in their ground-colour: measurements 2·8 by 1·9 in. The food consists chiefly of fish and small crabs, the indigestible portions of which are thrown up in large pellets, and Mr. T. E. Buckley has found similar castings composed of the husks of grain; the bird is, however, omnivorous, and is very injurious to the eggs and young of moorland-game and water-fowl.

The adult in summer is white, except on the mantle, which varies from slate-grey to black; the three outer primaries are of a dusky black which becomes paler towards the edges of the inner webs, though there is no grey 'wedge'; a sub-apical white mirror exists on the 1st and—in mature birds—on the 2nd quill; the legs and feet are yellow, and the relative shortness of the latter is characteristic. In winter the head and neck are streaked with dusky-brown. Length of a male 22 in., wing 16–16·5, tarsus 2·6, middle toe with claw 2·25 in.; the female is usually smaller. The young bird is similar to the immature Herring-Gull, but the upper parts are darker, and the primaries are nearly uniform black; the lower part of the tail is crossed by a black band, which gradually breaks up into mottlings and disappears with increasing age; the legs and feet are at first light brown.



THE GREAT BLACK-BACKED GULL.

LARUS MARÍNUS, Linnæus.

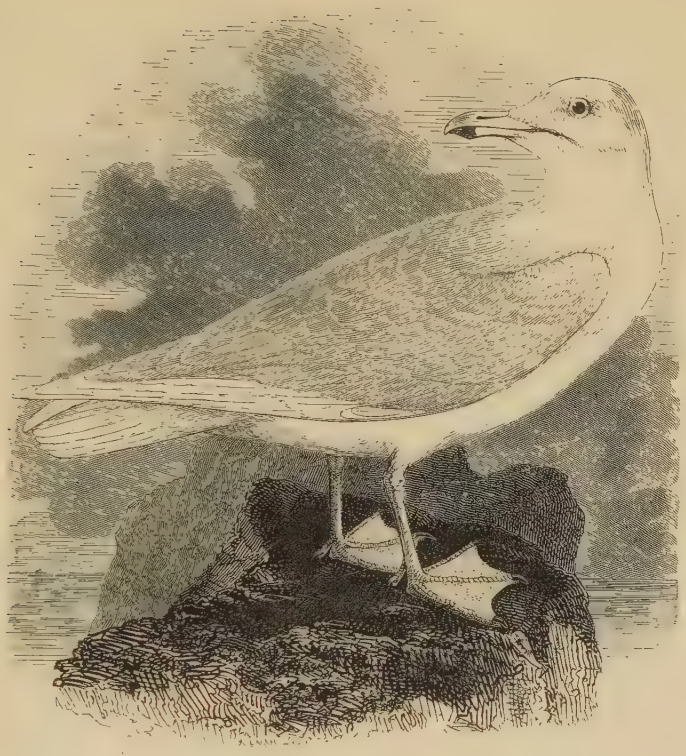
As a breeding-species this Gull is by no means plentiful in England; but birds in various stages of immaturity may be seen on our coasts at all seasons, while adults form a large proportion of the flocks of "corpse-eaters" which resort to the shores of the Humber in autumn. At the present day a few only nest on the cliffs of Dorsetshire, Lundy Island, Cornwall, Scilly, Wales, and, perhaps, on the Isle of Man; while some find breeding-places in the Lake district, and inhabit the 'flows' in the neighbourhood of the Solway. On the east of England no breeding-place is known. In many parts of Scotland this rapacious Gull is abundant, especially on the deeply indented coasts and islands of the north and west, and above all in the Outer Hebrides, where colonies of twenty to twenty-five pairs may be found; it also resorts, there and elsewhere, to islets in mountain lakes, and to lofty hill-tops. In Ireland it is widely distributed on the rocky coasts, especially in the north and west.

The Great Black-backed Gull is resident in Iceland and the Færoes,

and is plentiful during summer on the coasts of the North Sea, Scandinavia, and Russia, ranging as far east as the delta of the Petchora, and probably to the mouth of the Yenesei (Popham). Southward, no nesting-places are known on the Continent, except in the north-west of France; though the bird occurs in winter as far as the Canaries, and is met with on the Mediterranean and Black Seas, as well as on inland waters. Across the North Atlantic it is found breeding in Danish Greenland up to lat. 68° N., and has been observed in Baffin Bay; while southward, it nests in Labrador, Maine, and on some of the great inland lakes, visiting Florida, and occasionally Bermuda in winter. The Bering and Okhotsk Seas are frequented by *L. schistisagus* of Stejneger, a species which is quite as large as small specimens of *L. marinus*, and is often nearly as dark on the mantle; and it was an example of this, from Northern Japan, that I formerly referred to *L. marinus*. Dr. Stejneger's fine species proves, however, to be closer to the Herring-Gull section of the family; the next link in that direction being *L. vegæ*, which inhabits the eastern coasts of Siberia and visits Japan and China in winter. This last has a grey mantle, like *L. cachinnans*, but its tarsi and toes are flesh-coloured instead of bright yellow.

The nest of the Great Black-backed Gull is frequently on some isolated stack of rock or on an islet in a loch; and the eggs, laid in May, are never more than 3 and often only 2 in number; their colour is stone-buff, boldly blotched with dark grey and umber: measurements 3 by 2·1 in. Nothing in the way of animal food comes amiss to this predacious species, whether it be sickly ewes, weakly lambs, young or wounded water-fowl and game, eggs, or carrion. The majestic flight, large size, and loud querulous note of this species facilitate its recognition on the wing.

The adult male has the plumage white, except the mantle, which is black with a tinge of slate-colour; the scapulars and secondaries have white tips which form a strongly contrasted alar bar; all the primaries are broadly tipped with white, the first often for 3 in., while the second has merely a black subterminal bar, and even the third sometimes has a white spot; the 'wedges' on the inner webs are greyish, as in the Herring-Gulls; bill yellow, red at the angle; iris red; legs and feet flesh-colour. Length of a male 28–30 in., wing 19–20 in. The female is smaller, and has a less robust bill. The young bird is paler in ground-colour than immature *L. argentatus*, and has more sharply defined mottlings. The white mirror on the outer primary is shown long before mature plumage is assumed.



THE GLAUCOUS GULL.

LARUS GLAÚCUS, O. Fabricius.

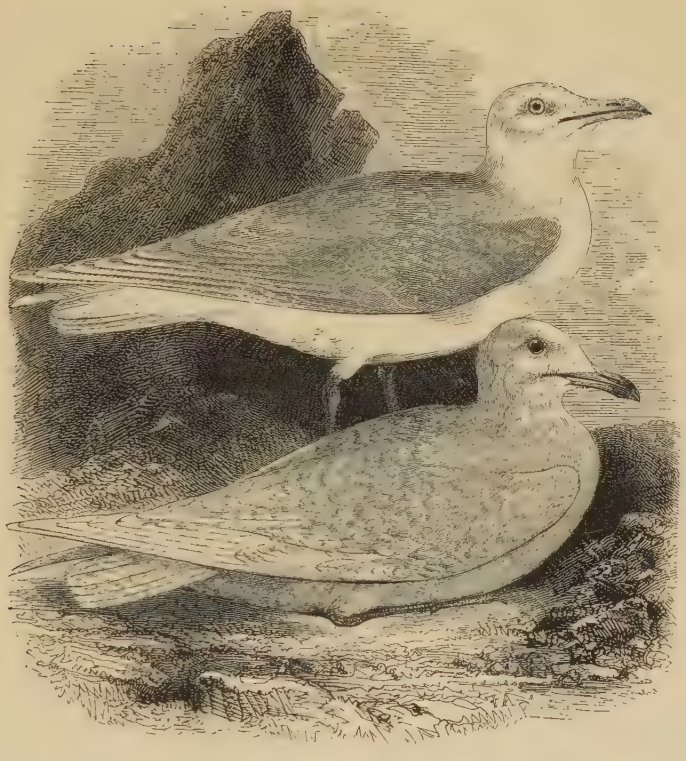
This is a Gull with nearly white wings, and equal in size to the preceding species. It is a visitor to our islands during the colder months of the year, especially to the northern districts; but although sometimes observed in the Shetlands as late as June, it has never been known to breed there, nor even in the Færoes. In severe winters it is sometimes abundant on the coasts of Great Britain, immature birds, of course, forming the majority; but south of Norfolk it is of irregular appearance, and in Wales and the west of England it is rare, although an example shot on the Severn in the winter of 1840 happens to be the subject of the illustration. In Ireland it is seldom met with, and then chiefly in the north and west.

The Glaucous Gull is common and resident in Iceland, and is found during summer throughout the entire circumpolar regions of

the Old and the New Worlds, but it abandons the highest latitudes during the winter time. Then its migrations extend as far south as the Straits of Gibraltar, the Mediterranean and Black Seas, and the northern part of the Caspian; Japan and California in the Pacific; the great lakes of America and the Mississippi valley, as well as the east coast to Florida and Texas. Mr. Ridgway has distinguished the Glaucous Gull of Alaska by the name of *L. barrovianus*, but I can see nothing exceptional in specimens from the North Pacific, the Arctic regions of America, or Greenland. The Pacific to the north of lat. 40° is inhabited by a slightly smaller species, *L. glaucescens*, which has its primaries chequered with pale grey, but not with black as in the Herring-Gull. A larger and very rare species, known from Alaska and Vancouver Island, has been named *L. nelsoni* by Mr. Henshaw; while on the east side of Baffin Bay, migrating to New York State in winter, there is a much smaller bird, *L. kumlieni*, with rather more definition in its wing-pattern.

The nest of the Glaucous Gull is made on projecting ledges of lofty cliffs or on low shores and sand-banks, according to circumstances; the eggs, usually laid in June, are stone-colour, spotted with ash-grey and brown: measurements 2·9 by 2 in. From its overbearing nature the Glaucous Gull has long been known as 'the Burgomaster' among whalers and sealers. It is omnivorous as regards diet; in South Greenland, during August and September, the berries of *Empetrum nigrum* are largely consumed by the immature birds; while such is its rapacity that Col. Feilden found two reindeer which he had shot one day on Spitsbergen reduced to hide and skeletons by the next morning.

The adult male in summer has the head, tail and under-parts white; mantle and wings pale pearl-grey, with white tips to the scapulars, secondaries, and outermost webs of the quills, the primaries reaching but little beyond the tail; bill yellow, orange at the angle; ring round the eye vermilion, iris yellow; legs and feet bright pink. In winter the head and neck are streaked with ash-grey. Length 29 in., wing 18–18·5 in. Females are often much smaller. The young bird is mottled with ash-brown on a creamy ground, becoming lighter at each moult, until, just before assuming the pearl-grey mantle, it becomes white for a short time. In this state it was supposed to be a distinct species, *L. hutchinsi* of Richardson; but its identity is now fully established, and I have watched every change of plumage in the birds brought up in the Zoological Society's Gardens. In the immature bird the bill is brown, the iris brown, and the legs and feet are livid flesh-colour.



THE ICELAND GULL.

LARUS LEUCÓPTERUS, Faber.

This is another species with whitish wings, and bears about the same proportion to the Glaucous that the Lesser Black-backed does to the Great Black-backed Gull. It was first recognized in the British Islands by the late Dr. Lawrence Edmonston of Unst in Shetland, and is now known as a tolerably frequent, though irregular, visitor to the sea-board of Scotland in cold weather; while the winter of 1872–3, which was remarkable for an unusual advent of Glaucous Gulls in the Firth of Forth, was still more so for the influx of Iceland Gulls, many of them being adults. Although this bird is naturally rarer on the shores of England, a large number reached Cornwall in January and February of 1873, while in the winter of 1874–5, after long-continued gales, both young and old were plentiful on the coast of South Devon. Mr. J. H. Salter says that in some

winters this species is not rare on the coast of Wales. In January and February 1892, it was rather plentiful in the north and west of Scotland; and the invasion extended to the north and west of Ireland, where the species had been previously considered rare, though met with occasionally, chiefly on the estuary of the Moy and in Donegal. It may now be considered of frequent occurrence, especially on the west coast, and exceptionally it has been observed in summer. On its migration northwards this bird has been observed by Mr. Cordeaux in the Humber district as late as April 18th.

The Iceland Gull is merely a wanderer to the Færoes, and even the island from which it derives its trivial name is only inhabited by it from September to May. During that period it is also found on the coasts of Norway, the Baltic (seldom), the North Sea, and the north and west of France down to the Gulf of Gascony (rarely). In the breeding-season it appears to be confined to Jan Mayen Island, Greenland, and perhaps the American side of Baffin Bay, though our naturalists did not observe it in Smith Sound during the expedition of 1875–6; while it is of regular occurrence as far south as Lake Michigan, and sometimes reaches Boston, during the colder months. All the birds assigned to this species from the North Pacific and Bering Sea are, in my opinion, *L. glaucus*.

The nest is often placed upon ledges of lofty cliffs. The eggs, 2–3 in number, are of a greenish stone-colour blotched with brown: measurements 2·75 by 1·8 in. The food consists chiefly of small fishes, but crustaceans as well as refuse are greedily devoured, and Saxby noticed this bird's partiality for oats and other vegetable substances. The flight is far more buoyant than that of the Glaucous Gull—as might be expected from the fact that the Icelander has much longer wings in proportion to its bulk; and Mr. Harvie-Brown has remarked that, when resting upon a mud-bank, it has a neater and more slender appearance and stands higher on its legs.

The adult in summer has the bill yellow, red at the angle; mantle pale grey; secondaries with white tips which form a band contrasting with the grey; rest of the plumage white; orbital ring flesh-coloured; legs and feet yellowish flesh-colour. Length 22 in., wing 16–16·5 in. (extreme). The largest male Iceland Gull does not attain to the length of wing of the smallest female *L. glaucus*, in spite of its comparatively longer wing. During the winter months the head and neck are spotted and streaked with grey. The young bird is at first somewhat darker than the immature *L. glaucus*, but is otherwise similar, and goes through the same stages, till maturity is attained in the fourth year.

THE KITTIWAKE GULL.

Rissa tridactyla (Linnæus).

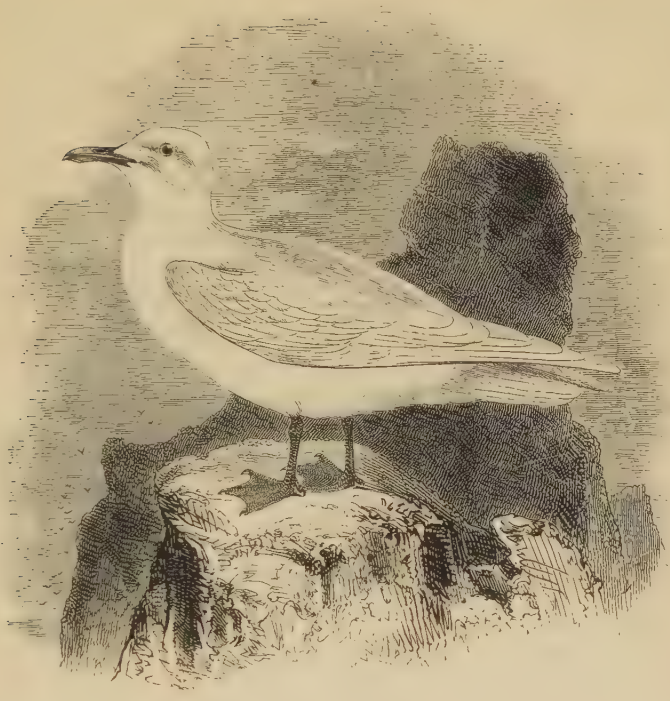
The Kittiwake—characterized by an obsolete hind-toe—is to be found in British waters throughout the year; resorting in summer to jagged cliffs, where immense numbers may often be found breeding in close proximity. There are colonies on Lundy Island off North Devon, the Scilly Islands, Wales, the Isle of Man, Flamborough Head, and the Farne Islands; and, on the east side of Scotland, at the Bass Rock, the Isle of May, and Dunbuy in Aberdeenshire; while in the Orkneys, Shetlands, and Hebrides thousands of birds whiten the precipices, and the 'gullery' on the Shiant Islands is probably the most extensive in Great Britain. In Ireland, too, this Gull is extremely plentiful on the precipitous portions of the sea-board.

On the Continent the Kittiwake is not known to nest further south than Brittany, but in winter it ascends the Garonne as far as Toulouse, and probably proceeds thence to the Mediterranean, where it is not uncommon as far as Sicily; it also visits the Black and Caspian Seas, probably crossing Russia from the north. Its southern range extends to the Canaries on this side of the Atlantic,

and to the Bermudas on the other; while, beyond the British Islands, this Gull breeds in myriads on the cliffs of the Færoes, Iceland, Norway—where a vast colony exists near the North Cape, Spitsbergen, Novaya Zemlya, Franz Josef Land, and wherever suitable localities present themselves in the Siberian Arctic Ocean. Westward, it is abundant in Jan Mayen, Greenland, and America above the Gulf of the St. Lawrence to 81° 40′ in Smith Sound, and as far west as Bering Sea, while it migrates to Lower California in winter. In Bering Sea are found individuals in which the hind-toe is not quite obsolete and is occasionally terminated by a minute nail; but this peculiarity is not always of equal extent on both feet of the same bird, nor is it confined to examples from the North Pacific. The area between Alaska and Kamchatka is also inhabited by a perfectly distinct species, *R. brevirostris* of Brandt, which has orange-red legs and feet, and a darker grey mantle than our bird.

The nests—usually of small pieces of turf or sea-weed, with a lining of bents, and exceptionally of such 'flotsam' as tobacco—are placed on narrow ledges of rocks; and I have seen some which were not more than 5 feet above high-water mark, though the topmost might be hundreds of feet higher. The eggs, 2–3 in number, vary from greyish-white to olive-buff, blotched and zoned with ash-grey and rich brown: measurements 2·15 by 1·6 in. They are seldom laid until the latter part of May, so that many of the young could scarcely fly—while others were still in the nest—when the original Sea-Birds Protection Act expired on August 1st; consequently thousands were formerly slaughtered to provide plumes for ladies' hats. The food consists of fish and marine animals; sea-water is drunk in preference to fresh; and marked birds have been known to follow vessels across the North Atlantic. The name is derived from the note, as are those of 'Hacket' and 'Hacklet'; the young bird is often called 'Tarrock.' The Kittiwake dives freely and also swims under water.

The adult in summer has the bill greenish-yellow; mantle deep grey; primaries chiefly black terminally from the 1st to the 3rd, and barred with black to the 6th; head, neck, tail and underparts white; legs and feet blackish. Length 15·5 in., wing 12 in. In winter the nape and hind-neck are grey, like the mantle. The young bird has the bill black; nape greyish; shoulders, wing-coverts and inner secondaries thickly spotted with brownish-black; 1st to 4th quills blackish on the outer and on part of the inner web; tail barred with dull brown near the tip; legs and feet brown until complete maturity is attained.



THE IVORY GULL.

PAGÓPHILA EBÚRNEA (Phipps).

The first recorded British specimen of this truly Arctic Gull was obtained by the late Dr. Lawrence Edmonston during the winter of 1822, in the Shetland Islands, where this species has subsequently been met with on several occasions. Four examples have been recorded from the Orkneys, one of them as late in spring as May; while the Outer Hebrides, Sutherland, Caithness, Banffshire and Aberdeenshire, and even Roxburghshire have been visited, and six or seven birds have been killed in south-western waters, chiefly off the Firth of Clyde. In England this Gull is, naturally, more frequent in the north than in the south; but its migrations have extended to the Channel and Cornwall, and, exceptionally to Wales; while in Ireland two birds have been taken and others have been observed. Altogether it may be considered that about thirty-five specimens have been procured in the British Islands, and, of these, rather more than half appear to have been adults.

The Ivory Gull has been recorded on one occasion from Iceland, and has been noticed on the coasts of Northern Europe down to the mouth of the Somme in France, as well as near Lausanne in Switzerland. In the high northern latitudes it is now known to be completely circumpolar in its range, for the American expeditions to Point Barrow and Bering Sea met with it in those parts, where it had not previously been observed, though already known to be tolerably common on the Siberian coast and the islands to the northward. Almost all the Arctic explorers in America have recorded it; Richardson found it breeding in long. 122° W.; Sir Leopold M'Clintock obtained a single egg (now in the Dublin Museum) from a nest on Prince Patrick's Island in 116° W.; and Col. Feilden saw a pair on a lofty and inaccessible cliff in Smith Sound, on August 16th 1875. In Baffin Bay it is plentiful, and adults as well as immature birds are annually obtained in Greenland; while in winter they wander as far south as New Brunswick. The best known breeding-places are in the Spitsbergen archipelago, especially on Stor-oën, and on Franz Josef Land (Ibis 1898, p. 264), while Admiral Markham found the bird plentiful in the west and north of Novaya Zemlya, and Dr. Nansen's Expedition met with it in 1894, in lat. 81° N. and long. 130° E.

The nest, composed of moss, sea-weed and drift, is sometimes on ledges of precipices, but very often on the ground; the eggs, which are not known to exceed 2 in number, are very similar to those of *L. canus*, and measure about 2·5 by 1·7 in. In 'The Ibis,' 1888, pp. 440–443, Prof. R. Collett has given a description of a fine series, with a coloured illustration of two eggs and of a downy nestling; while Mr. W. S. Bruce has described a colony on Franz Josef Land (*op. cit.* 1898, pp. 265–267). The food consists largely of marine animals and the droppings of walruses and seals, but the 'krang,' *i.e.* flensed carcases, of whales &c., are greedily devoured. Col. Feilden says that this bird has a shrill note, not unlike that of the Arctic Tern, and also that in its flight it resembles a Tern rather than a Gull.

The adult in summer has the entire plumage white, slightly rosy in life; the bill greenish-grey at the base and red at the tip; legs and feet black, the hind-toe strongly developed and connected with the tarsus by a well-defined web. Length of a male 18 in., wing 13 in.; the female being smaller. The young bird is dark grey on the face and chin, and is spotted with black on the back, wing-coverts, tips of the primaries and tail-feathers, as well as on the upper and under tail-coverts. The downy nestling is greyish-white; the fledgeling is smoke-grey.

THE GREAT SKUA.

MEGALÉSTRIS CATARRHÁCTES (Linnæus).

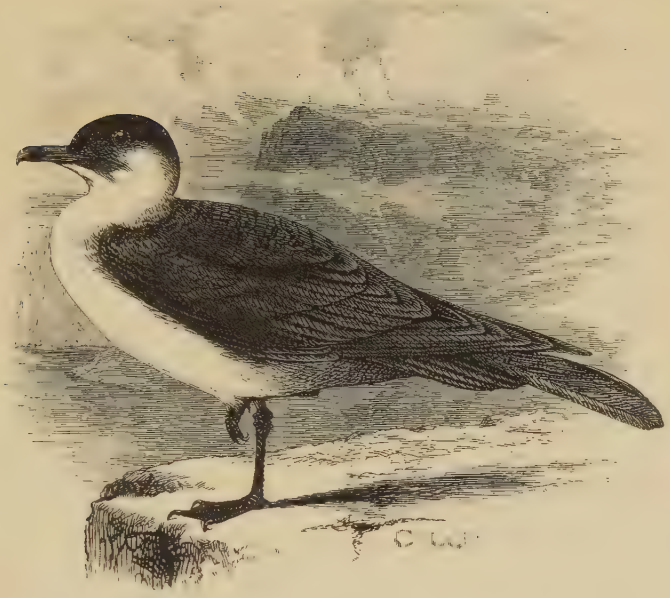
This is the largest European representative of the group of Parasitic Gulls, the members of which obtain their food chiefly by robbing the smaller sea fowl. In the British Islands the only breeding-places of the Great Skua or 'Bonxie' are in the Shetlands, where a well-known colony on Unst, and another on Foula may be mentioned, at both of which the bird is protected. It seldom visits the Orkneys or the Outer Hebrides, and is decidedly scarce along the west side of Scotland, though occasionally met with on the east during the colder months; and the same may be said of Wales and England, down to and throughout the Channel; but it seems to be rarer than is really the case, because it frequents the fishing-grounds far out at sea, where the Gulls, which it robs, are plentiful. Exceptionally, after severe weather, it has been met with inland. It has rarely been obtained in Ireland.

The Great Skua breeds in the Færoe Islands, though diminished in numbers by the 'neb-toll' to which rapacious birds are subject;

while in Iceland it is still abundant on the Vestmanna Islands, and has four or five smaller settlements. There is no evidence of its nesting within Norwegian waters, where it is scarce at any season; and although it can be traced in winter to the Straits of Gibraltar, or a little further southward, it seldom enters the Mediterranean; it has, however, wandered to the lakes of Switzerland, and in 1882 to the Province of Verona. Though very rare in South Greenland, it appears to breed on some islands to the north of Hudson Strait; and it is not uncommon on the fishing-banks down to New England, in winter. Its reported occurrence across the Fur regions and in the North Pacific is not confirmed by any recent explorer. On both sides of South America, from lat. 12° S. to the Straits of Magellan, its representative is *M. chilensis*, which has bright chestnut under-parts and axillaries; while in the Falkland Islands and throughout the Southern Ocean we find *M. antarctica*, a stouter, sooty-brown species; and in Victoria Land, lat. 71–76 S., long. 171–178 E., *M. maccormicki*, a very pale representative.

The nest—a cavity in the moss and heather of the highest moorlands—is prepared in the latter half of May; and the eggs, 2 in number, are olive-brown or pale olive-green with darker markings: measurements 2·8 by 2 in. When handling a nestling, I found the parents unremitting in their assaults; they came down at full speed, almost skimming the ground, until, at about fifteen yards' distance, the strong feet with their hooked claws were lowered and held stiffly out, producing for the moment a very ungainly appearance; but on quickly lifting the hand or stick, the bird rose again, while the whirr and vibration of its pinions could be distinctly heard and felt. The stomachs of a pair shot on the Færoes were full of the flesh of the Kittiwake, and the castings consisted of the bones and feathers of that bird; Heysham has recorded the capture of an adult in the act of killing a Herring-Gull; and fish and offal are often eaten. The cry is *skui*, *skui*; whence the bird's name.

The adult has the head and throat dark brown mottled with rufous; nape covered with yellowish-brown acuminate feathers; upper parts dark brown, mottled with chestnut and dull white; quills umber-brown, with white bases which are conspicuous in flight; tail-feathers umber, the central pair projecting about ·5 in.; under-parts rufous-brown; under wing-coverts blackish; bill, legs and feet black, the claws hooked and sharp. Length 21 in., wing 16 in. The sexes are alike externally; and the young bird scarcely differs from the adults, except in the greater freshness of its plumage. Melanotic varieties are occasionally met with.



THE POMATORHINE SKUA.

STERCORARIUS POMATORHÍNUS (Temminck).

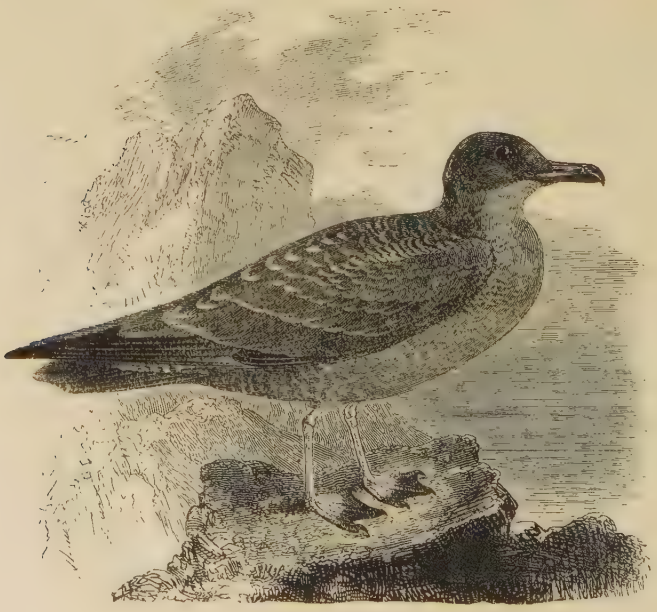
This species is of tolerably regular occurrence on the coasts of Great Britain; especially on the eastern sea-board, where a remarkably large migration was noticed in the autumn of 1879, and another, less extensive, in October 1880. Some individuals remain throughout the winter on our southern shores, and have been met with far inland, after severe gales, but comparatively few are seen on the spring passage. In Ireland the appearance of this bird is irregular.

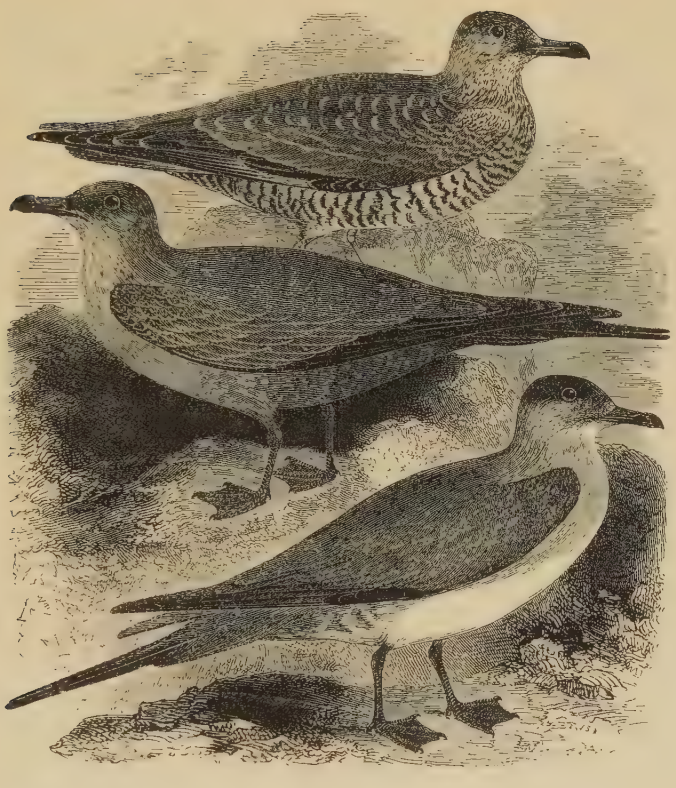
In varying numbers the Pomatorhine Skua is a visitor to the coasts of Europe. Though observed to the northward of the Spitsbergen group—and abundant in some years during August in the eastern islands—it has not yet been proved to breed in that archipelago; nor has it been actually obtained on Franz Josef Land, though it occurs on both islands of Novaya Zemlya. In 1895, Mr. Popham found nests near the mouth of the Yenesei, while Middendorff had previously obtained eggs on the Taimyr tundras further to the eastward. Thence, the bird can be traced to Bering Sea; and it occurs across Arctic America to Baffin Bay. In North Greenland it appears to breed in colonies above Egesdesminde; while it has been obtained in Jan Mayen and Iceland, and visits

the Færoes on both migrations; it occurs on the inland waters of Europe down to the Mediterranean, and along the west coast of Africa to Walvisch Bay; and it has been obtained in Japan, Burma, North Australia, California and Peru.

The 2 eggs, deposited in a mere depression of the moss, are of an olive-brown with darker blotches, Mr. Popham's specimens measuring about 2·6 by 1·8 in. Like other Skuas this species plunders the Terns and Gulls; devouring 'krang' or any animal matter cast up by the sea, and preying freely on lemmings.

The adult has the front and crown of the head sooty-black; neck white, with straw-yellow acuminate feathers; upper parts chiefly umber-brown, the two central tail-feathers projecting 4 in. and being twisted vertically; breast dull white; flanks, abdomen and under wing-coverts brown; bill horn-brown; tarsi and toes reddish-black. Length 21 in., wing 14·25 in. The yellow on the neck is sometimes assumed before the central tail-feathers are fully developed; and the flanks and tail-coverts are striated, except in mature birds in autumn. Younger examples have a brown pectoral band, more or less striated under-parts, barred tail-coverts, and central tail-feathers little elongated. The bird of the year (represented below) is brown, mottled and barred with dull rufous. Melanotic varieties are not uncommon in immature birds.





THE ARCTIC OR RICHARDSON'S SKUA.

STERCORARIUS CREPIDÁTUS (J. F. Gmelin).

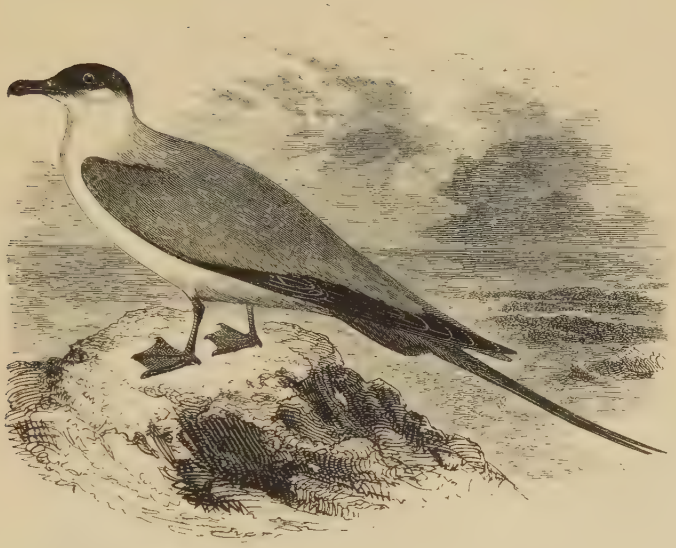
The second English name is strictly applicable to a dark form of this bird; but it is often employed and has the merit of being distinctive, whereas the first has occasionally been conferred on the next species. The Arctic Skua breeds on most of the Shetlands, and has several colonies in the Orkneys, while on the mainland it may still be found in Sutherland and Caithness; it also nests at a few spots in the Outer Hebrides, and sparingly on two or three of the Inner islands. It is a regular migrant along both sides of Scotland, as well as down the east coast of England; but it is less frequent in the Channel, while comparatively irregular in the western sea. To Ireland it is a periodical visitor. It has been met with on inland waters in various parts of the British Islands.

There are two very distinct varieties of the Arctic Skua, the one

being entirely sooty, while the other has light under-parts; but where they meet they mate indiscriminately. Both the extreme and intermediate forms are found nesting on our northern islands, the Færoes, Iceland, the coasts of Scandinavia, Russia, and probably Novaya Zemlya; but the sooty bird has seldom been observed in the Spitsbergen group, and most of the specimens from the far north of America are white-breasted. The dark form predominates towards the southern limit of the bird's breeding-range, whereas the white-breasted race increases in numbers to the northward until it gains the ascendency. As a breeding-species this Skua may be described as circumpolar; in the cold season it frequents the coasts of Europe down to the Mediterranean, West Africa as far as the Cape of Good Hope, the Persian Gulf and Mekran coast, the North Pacific to California, and the Atlantic to Barbados and even Rio de Janeiro, while it has occurred several times in Tasmania and New Zealand.

Towards the end of May or early in June the eggs, 2 in number, are laid in a hollow of the moorland moss or grass; they are of a brownish-green colour, blotched with dark brown: measurements 2·4 by 1·6 in. The flight of this Skua is rapid, although somewhat devious; and any intrusion upon the breeding-ground is resented by swoops which are directed from behind or sideways; but although the bird will actually strike with its wing, I have never seen it make a front-attack. The cry is a plaintive *mee*, sometimes a sharp *mee-áwh*. This species feeds principally upon fish, obtained by robbing the smaller Gulls, but it also preys upon wounded or disabled birds, is said to plunder the eggs of other sea-fowl, and has been known to pick up worms and molluscs. It does not dive, but has frequently been observed to settle on the water.

The lowest figure is that of an adult though, but not a very mature example of the intermediate form; in many, as already observed, the throat and breast are white, and not shaded with brown. The middle bird may be said to belong to the dark race, though more sooty individuals are to be met with. Between the above there is every gradation; but all the adults have a yellow tinge on the acuminate feathers of the cheeks and neck, and are umber-brown on the upper-parts. Length 20 in. (tail 5, and central pair of feathers often 3 in. longer), wing 13 in. The young bird (at the top) I consider to be the offspring of light-coloured parents; the progeny of a dark pair being much more sooty, with merely rufous edges to the upper feathers.



THE LONG-TAILED OR BUFFON'S SKUA.

STERCORARIUS PARASÍTICUS (Linnæus).

This circumpolar species is rather smaller and much more attenuated than the preceding, and is a less regular migrant to the British Islands. Though naturally more frequent in the north than in the south, it had not been noticed in any numbers in Scotland until the autumn of 1891; on the east side of England, however, it is comparatively common, especially between the mouth of the Tees and Flamborough Head, and many birds, some of them adults, were killed during the great storms of October 1879. Though rarer to the southward, this species is met with along the Channel, where it was abundant in October 1891, when individuals were also obtained inland. Until the invasion of 1891, the west was seldom visited, though old birds had occurred there in spring on several occasions, one having been shot in Cornwall as late as June 4th 1877, and another in Cumberland on June 3rd 1885. In Ireland it has been noticed in autumn, and, sparingly, in spring.

The Long-tailed Skua does not breed in the Færoes or Iceland; but in Norway a few pairs inhabit the Dovrefjeld above the limit of forest-growth, while Wolley, Wheelwright and others found considerable numbers nesting on the fells of Swedish Lapland to the north

of lat. 68°. It breeds in Spitsbergen, and also in Novaya Zemlya where Admiral Markham obtained a nestling, now in the British Museum. Eastward, this species can be traced across the tundras of Siberia to Bering Sea, and it is widely distributed over the Arctic regions of America. Col. Feilden met with no other Skua in Smith Sound at 82° 50′ N.; it breeds also in many parts of Greenland, and visits Jan Mayen. On migration it ranges southward as far as the basin of the Mediterranean, and down to about lat 40° N. on the east of America, while on the Pacific side it has reached lat. 20° N.

The eggs—usually 2 in number—are laid on the ground in some slight hollow, and are smaller, greener, and often more scrolled than those of the Arctic Skua, which they otherwise resemble: measurements 2 by 1·5 in. The birds are very bold when their nest is approached, and utter a loud shrieking note; the flight is remarkably swift and elegant. In summer, crowberries are largely consumed by the young; at other times beetles, crustaceans, worms, small birds, fish robbed from other Gulls or Terns, and lemmings, form the diet of this species, with a preference for the last kind of fare.

The adult has the forehead, lores, crown and nape brownish-black; lower cheeks and neck buffish-yellow; mantle and central tail-feathers of a greyer brown than in the Arctic Skua; wings and the shorter tail-feathers dark brown; breast chiefly white; flanks and belly greyish-brown; bill dark horn-colour; legs olive-grey; feet black. Length 23 in., including the long tail-feathers, which sometimes project as much as 8·5 in. in the male and 7 in the female; wing 11·9 in. Immature birds are barred with greyish-brown and white on both upper and under parts—especially on the breast, flanks, and tail-coverts. The young of the year are subject to a little variation in tint, especially on the lower surface, but are always greyer and less rufous than examples of the Arctic Skua. The readiest distinction at any age is, however, to be found in the shafts of the primaries; all of these being *white* in the Arctic Skua, whereas in the Long-tailed Skua *the two outer ones only* on each side are *white*, the rest being dusky: a fact which was distinctly indicated by Linnæus in his description.

In the young of this and of the two preceding species the interdigital webs are parti-coloured, as shown in the vignette of the Pomatorhine Skua (p. 690). It was this peculiarity which led Banks to confer the mere name *crepidatus* (sandalled) upon the Arctic Skua, though Gmelin was the first to give a proper description of that species.

THE RAZORBILL.

ALCA TÓRDA, Linnæus.

The *Alcæ*, or Auks, are pelagic birds endowed with great powers of diving, while they swim admirably below as well as on the surface of the water. They are found only in the higher or the temperate regions of the Northern hemisphere, and have little structural affinity with the Penguins of the Southern oceans, with which they have been frequently associated, owing to a confusion of popular names and a certain superficial resemblance. The Razorbill is one of the best known members of the family, and, together with the Common Guillemot and the Puffin, may be seen in the tide-way off our coasts throughout the year; but all three species can be best observed during the breeding-season, when they assemble by hundreds and thousands on suitable precipices and island-cliffs throughout the United Kingdom. They usually arrive in the latter part of March or early in April, and after the duties of incubation are over they return to the open sea, accompanied by their young. The Razorbill is, however, less plentiful than the Guillemot or the Puffin, and is rather more partial to sheltered waters.

This Auk has been obtained off Jan Mayen, but is unknown in Spitsbergen and the high Arctic regions to the eastward. It breeds in the Færoes, Iceland, Scandinavia up to lat. 71° N., and southward to Brittany; while in winter it visits the Baltic, and goes up the Mediterranean to the Adriatic and Malta, though the majority keep well out in the Atlantic as far as the Canaries, unless driven into bays by stormy weather. In summer it resorts to the west coast of Greenland up to about 73°, but seldom reaches the American side of Davis Strait, and it has not been met with in the Arctic waters to the westward. Southward, it breeds in Labrador and down to the Bay of Fundy; while in winter it has visited North Carolina. There is no proof of its occurrence in the Pacific.

The Razorbill deposits a single egg, by choice in a burrow or a crevice, or at least on an over-hung ledge, but in default of these it will make use of an open shelf, like a Guillemot. When brooding it couches along—not across—the egg, its mate often standing near; and both sexes incubate, the male bringing food to the female when she is sitting. The eggs, often laid by the middle of May, are not so pear-shaped as those of the Guillemot and seldom show the faintest tinge of green; they are usually white or pale chocolate-brown, blotched and often zoned with mahogany-colour or black: measurements 2·9 by 1·9 in. On holding the empty shell against the light the inside lining-membrane shows *green*: whereas in that of the Guillemot it appears to be *yellowish-white*, except when overpowered by the green of the shell itself. The young flutter from the rocks to the sea, or (it is said) are taken by the neck and carried down by the parents; they are at first very loth to follow the old bird in diving, and remain crying plaintively on the surface of the water. The food consists of small fish (which are carried diagonally in the bill, not at right angles as they are by the Puffin), and crustaceans. The Razorbill utters a peculiar grunting or groaning, especially when sitting; on the water it may be distinguished at a distance from the Guillemot by its upturned tail.

The adult (figured on the right) is chiefly greenish-black above, deep brown on the throat, and white below; in winter the upper-parts lose the greenish gloss, and the throat, fore-neck and cheeks are white. Length 17 in., wing 7·3. A young bird killed in December (central figure) has the bill smooth and black without any white groove on either mandible, and shows only a faint white line from the top of the bill to the eye; its plumage resembles that of the adult in winter. I do not think that breeding takes place until the bird is nearly two years old.

THE GREAT AUK.

Alca impénnis, Linnæus.

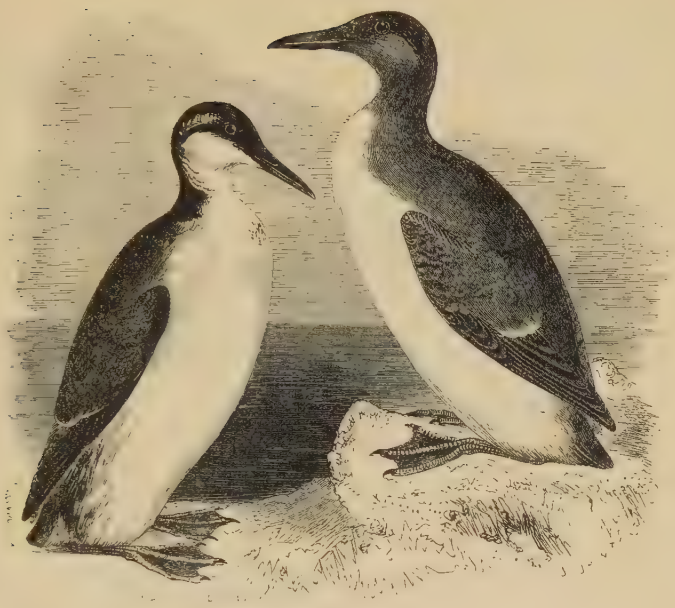
This species, also called the Gare-fowl, is now supposed to be extinct, and with good reason, for since 1844, when the latest examples were obtained off Iceland, the bird has been vainly, though assiduously, sought. It formerly inhabited the shores of Iceland, the Færoes, and the Scandinavian coast of the North Sea; while its presence in the Outer Hebrides was recorded as long ago as 1684, though the bird had evidently become very rare in Scottish waters by the beginning of the present century. An adult male —now in the British Museum, and from which the above illustration is taken —was obtained by Bullock in 1813, from Papa Westray in the Orkneys; in August 1821 or 1822, Fleming received a live bird which had been captured on St. Kilda; and in May 1834 another —now in the Museum of Trinity College, Dublin—was taken alive at the mouth of Waterford Harbour. No other British specimens are in existence; but Mr. Henry Evans, during his visits

to the St. Kilda group, has collected strong evidence that about 1840 a bird was secured on the grassy slopes of Stack-an-Armin, and was killed three days afterwards as a witch, in consequence of a storm which frightened its captors. Remains have been found in Caithness, Argyllshire, some old sea-caves in Durham, and latterly in several districts of Ireland, especially near Waterford; also, abundantly, in Denmark.

Nowhere was the Great Auk so abundant as round Newfoundland, and particularly on Funk Island, where numerous bones and even natural mummies have been found, as well as the remains of the rude stone enclosures or 'pounds' into which—between the sixteenth and eighteenth centuries—the birds used to be driven by French and other fishermen, who afterwards salted them down for food. The "Penguin" or "Pin-wing," as it was called, also frequented the coast of Labrador, and was recorded by Catesby from the waters of Carolina in winter. Passing northwards, there is no proof that the Great Auk has been obtained within the Arctic circle; or even above 65° 20′, on some islands near the east coast of Greenland, now blocked by drift ice. Off the south-west of Iceland, which has furnished the majority of the skins and eggs existing in collections, there were three skerries on which it appears to have bred; one of these—the Geirfugla-sker, near Reykjanes—disappeared during a submarine eruption in 1830, after the colony on it had been nearly extirpated; Eldey or the Meal-sack was systematically robbed until the last two birds were taken alive in June 1844; and there can now be no hope that a remnant may exist on the surf-encircled Geirfugla-drángr. A graphic description by Professor Newton, of his researches and those of Wolley in Iceland, is to be found in 'The Ibis' for 1861, pp. 374–399.

The eggs resemble those of the Razorbill in general coloration, but some of them exhibit a distinctly green tinge, as well as an approach to the scrolling often observable in those of the Guillemot: measurements 4·9 by 2·7 in. About seventy-two of these, and seventy-nine skins or mounted birds, appear to be in existence. The food is said to have consisted chiefly of fish; and the bird's powers of swimming and diving have been described as remarkable. The note was a low croak.

As shown by the engraving, the bird in summer-plumage is chiefly black above and white below; Fleming's description shows that after the autumn moult the throat and fore-neck became white. Length 32 in.; the longest feather of the wing only 4·25 in. The incapacity for flight was, of course, the main cause of the bird's extermination.



THE COMMON GUILLEMOT.

Úria tróile (Linnæus).

The Common Guillemot is more numerous than the Razorbill, which it resembles in the localities it frequents, the times of its arrival and departure, its manners, habits, and food. Near Flamborough, and at other large and accessible colonies, its eggs are collected during the season in vast quantities, chiefly, it is said, on account of the albumen, which is used in trade, and, except where extirpated by persecution, settlements may be found on suitable sea-cliffs throughout the British Islands, especially in Scotland, Ireland and Wales.

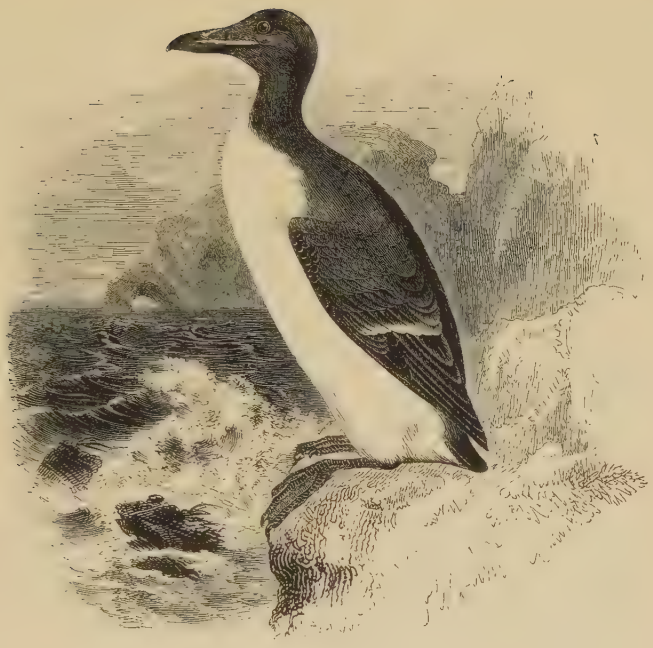
This species abounds in the Færoes, the south of Iceland, and Norway as far east as the Varanger-fjord; while it ranges northward to Bear Island. In the Baltic it breeds on Bornholm; there are colonies on Heligoland, as well as on the northern and western coasts of France; and Mr. Tait has obtained eggs from the Berlengas Islands, off Portugal. The Guillemot seldom enters the Mediterranean, but it frequents the Atlantic down to about lat. 30° in winter; and on the American side it breeds from lat. 64° N.

down to New England. A form with a somewhat stronger bill inhabits the North Pacific.

The Guillemot prefers open ledges or the flat tops of 'stacks'; and on these is laid a single egg, of large size. Its very variable colour is generally bluish-green more or less blotched and streaked with dark reddish-brown or black, though sometimes it is white scrolled with brown, and often plain green or white without any streaks or blotches, while a rich reddish-brown variety is less common. The form is that of an elongated pear: measurements 3·25 in. by 2 in. The hen usually sits facing the cliff, holding the egg between her legs, with its point outwards; if robbed she will lay at least one more, similar in colour and markings. Plenty of young are on the sea by the third week in July, and by the end of August or early in September both parents and offspring have quitted the rocks for the year. In England this species is often called "Murre," from the hoarse murmuring emitted by the multitudes assembled at their breeding haunts; by fishermen it is known as "Scout," "Marrot" or "Tinkershere"; and the young bird is called "Willock" from its cry: whence, probably, the word Guillemot, of French origin. Considerable force is exercised in diving, and the wings are used for propulsion under water.

The adult in spring-plumage (on the right) has the head, neck and upper-parts of a variable brown; undersurface white; bill blackish; legs and feet smoky flesh-colour, webs darker olive. Length of a male about 18 in., wing 7·5; the female being rather smaller. In winter the throat becomes white or is mottled irregularly with brown; as shown in the young bird on the left.

The Ringed or Bridled Guillemot, figured below, is now generally admitted to be a variety, with an unusual development of white round the eye and along the crease or furrow behind it.



BRÜNNICH'S GUILLEMOT.

URIA BRUENNICHI, E. Sabine.

This species may be distinguished from the preceding by its larger size, as well as by its stouter and deeper bill, for which reason it has been called the Thick-billed Guillemot; it is also blacker in plumage on the upper-parts. It was originally included in the British list upon somewhat slight evidence, for no competent observers had met with it on the coasts of Ireland, the Shetlands, the St. Kilda group, or in other places where it was said to have occurred; though it seemed probable that a specimen from Caithness was once in the Sinclair collection at Wick, and that a specimen found by Macgillivray among some skins belonging to the late Mr. Wilson, janitor to the University of Edinburgh, had been sent from the Orkneys, while an example was said to have been obtained off the mouth of the Orwell in Suffolk. But all doubt was at an end when three identified specimens were obtained on the Yorkshire coast, in December 1894 and January 1895, while one was taken in Cambridgeshire on January 12th of the latter year.

The late Mr. E. Hargitt's collection contained a Brünnich's Guil-

lemot which was undoubtedly killed near Havre in France. The species is a straggler to the coasts of the North Sea during winter, and sometimes visits the higher latitudes of Norway in considerable numbers; but it has not yet been recognized in the Færoes, while even in Iceland it is almost confined to the northern districts. In Greenland it breeds above lat. 64°, and Col. Feilden has described (Zool. 1878, p. 380) his visit to a vast colony or "loomery" in the cliffs of Sanderson's Hope—over a thousand feet in height—a little to the south of Upernavik; he also observed two individuals in August as far north as lat. 79°, after which this bird was not seen again until the return of the 'Alert' to navigable water south of Cape Sabine. It abounds on Jan Mayen, as well as Spitsbergen, and round the latter it seems to pass the winter, for at 80° N. Mr. Arnold Pike records its presence on January 11th; while at Franz Josef Land, where there are several "loomeries," Mr. B. Leigh Smith's party met with it on March 9th; and Dr. Nansen shot a bird in lat. 82° 19′ N. It is also plentiful on Novaya Zemlya and along the Siberian coast of the Arctic Ocean as far as the waters to the north of Bering Strait. In Bering Sea and the North Pacific, American naturalists distinguish a larger sub-species, which they call *Uria lomvia arra*; but on the Atlantic sea-board the typical form breeds abundantly down to the Gulf of St. Lawrence, while in the winter of 1896 its range extended to South Carolina, and several birds were captured as far inland as Indiana.

The eggs are, as a rule, somewhat thicker and blunter than those of the Common Guillemot, but they are subject to the same variations in colour, though in green specimens that colour is perhaps a trifle more pronounced. The food and habits, so far as is known, do not differ materially from those of the preceding species.

The adult in summer has the beak black, with a whitish line along the edge of the upper mandible from the nostrils to the gape; crown of the head and nape black, with a greenish gloss; remaining upper-parts duller black; secondaries tipped with white; throat and fore-neck sooty-brown, as in the Razorbill; under-parts white, that colour running more to a point in front of the neck than is the case with the Common Guillemot, in which the white usually terminates in a rounded arch. Length of a male 18 in.; wing 8·25 in.; the female being rather smaller. The dark throat is lost in winter, as it is in *U. troile*; and in the young bird the bill is much smaller than in the adult. White varieties have been met with by Col. Feilden in the Greenland and Spitsbergen seas.

THE BLACK GUILLEMOT.

Uria grylle (Linnæus).

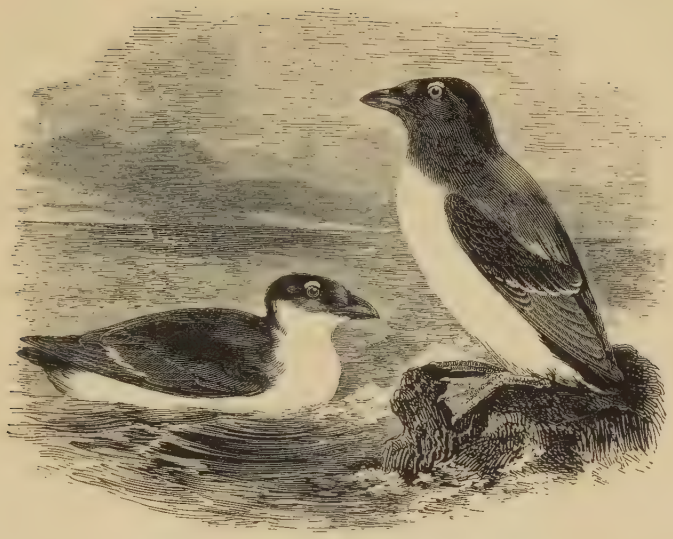
The Black Guillemot is chiefly an inhabitant of our northern waters, and its occurrences on the east coast of England or as far south as the Channel are infrequent, even in winter. At the present day it is not known to breed in Wales, but a few pairs resort to the Isle of Man; while across the Irish Sea it is found in small numbers on the rocky portions of cos. Dublin, Wicklow and Antrim, becomes more numerous in the north and west, and can be traced along the south coast to co. Waterford. In Scotland, it appears to have abandoned some localities on the east side where it formerly nested; but it is common about the cliffs near Duncansby Head in Caithness, as well as on the west coast of Sutherland, while it may be called abundant in the Hebrides, especially on the Ascrib Islands in Loch Snizort, Skye. It is likewise plentiful in the Orkneys and Shetlands, where it is generally known as the "Tystie."

This species breeds in the Færoes, Scandinavia up to the North Cape, Denmark, and some parts of the Baltic, as well as in the

White Sea as far as Onega; while on the other side of the Atlantic, it is found from Massachusetts to South Greenland. The birds obtained by Col. Feilden in Smith Sound to the north of lat. 82°, belong to the form distinguished as *Uria mandti*, in which the bases of the feathers forming the wing-spot are pure white and the black has a green tinge; and this abounds in the waters of Spitsbergen, Novaya Zemlya, Franz Josef Land, and Arctic Siberia, round to Bering Sea. There it meets with *U. columba*, another near ally; while further south, ranging to Japan in winter, the representative is *U. carbo*, which has no white on the wings. Totally black individuals have been reported from Hebridean waters.

By some systematists the Black Guillemots have been separated from the other Auks and placed in the genus *Cepphus*; and they undoubtedly differ from the species already noticed, in that they lay 2 eggs. These are deposited in crevices of cliffs, or, occasionally, of old ruins, as well as on the bare ground under blocks of stone or among large boulders, sometimes a hundred yards inland: their colour is white, slightly tinged with green or blue, and spotted with ash-grey and several shades of brown: measurements 2·3 by 1·5 in. The yolk is of a very deep orange-red colour. The birds return to their accustomed haunts year after year, and both sexes undoubtedly take part in the duties of incubation. Dunn and Saxby state, from observation in Shetland, that the young never leave their birth-place until perfectly fledged and able to provide for themselves, after which they are abandoned by their parents. The food is small fish and fry, crustaceans &c.; the cry is shrill but rather plaintive.

The adult in spring has the beak black, inside of the mouth reddish-orange; irides brown; plumage sooty-black, with a greenish gloss, except for a patch on the wing-coverts, which is white with a black bar—often concealed—on the basal portion; legs vermilion-red; length 14, wing 6·5 in. The sexes are alike in plumage. After the autumn moult, the crown is white marked with black, the back is barred with black and white, and the rump and underparts are nearly white; but mature birds are black in winter. The young bird exhibits more white than in the autumn dress just described, dark brown irides, blackish-grey bill, inside of the mouth pale orange; tarsi and feet deep brown; but by the end of September the inside of the mouth has changed to brownish-pink and the legs and feet to a deeper tint, while in December the colour of these parts differs only in degree from that of the adults. By the end of June the bird is indistinguishable from the adult (Saxby). Varieties are occasionally met with.



THE LITTLE AUK.

MÉRGULUS ÁLLE (Linnæus).

This species—also called the Rotche or Rotge, names apparently of Scandinavian origin—is a tolerably regular winter-visitor to the northern coasts of the British Islands; and, though less frequent southward, it occurs as far as the Channel. After stormy weather, examples have been obtained at some distance up the Thames and other rivers, as well as at many places inland; while many hundreds were taken, and far more were noticed, on the British coasts, during the exceptionally severe weather of January 1895. Birds in full summer-plumage are sometimes observed, and one of these was obtained on the Monach Islands, in the Outer Hebrides, on June 24th 1893. On the coast of Wales the species occurs almost every winter; while it is not unusual in Ireland.

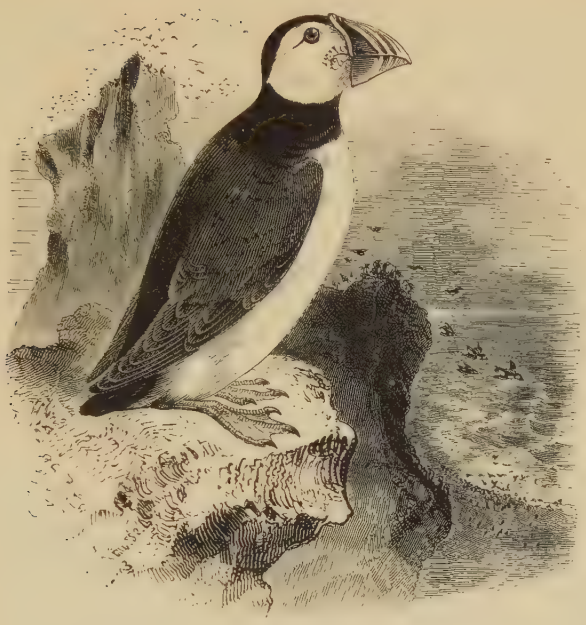
During the colder months the Little Auk frequents the North Sea, and is distributed over the Atlantic as far south as the Azores and the Canaries. Although resident in Iceland throughout the year, its only breeding-place there appears to be on Grimsey, in the extreme north; but on and about Spitsbergen—from lat. 73° N. to the drift ice at 82°—its numbers are almost incredible. In 1896 Dr. Nansen observed it as early as February 25th, off Franz Josef Land;

while it is common on the west side of Novaya Zemlya, though not known directly to the eastward of the Kara Sea. In Greenland large colonies exist from lat. 68° northward nearly to 79°, beyond which Col. Feilden did not observe this species; nor has it been recognised in the Arctic regions to the westward of Baffin Bay, or in Bering Sea, and the Pacific. In winter it ranges as far south as New Jersey, being well known to American fishermen as the "Ice-bird," from its partiality to the vicinity of bergs and floes; and even as early as August 15th 1884, the steamer, on which I was, passed through a flock in the Gulf of St. Lawrence, where, at that time, there happened to be an unusual quantity of ice.

The single egg is deposited in holes and tunnels under stones, so far in that the Arctic foxes cannot reach it, or else in cliffs up to 2,000 feet above sea-level; it is of a pale greenish-blue colour, sometimes faintly spotted and scrolled with red: measurements 1·9 by 1·25 in. Col. Feilden found nestlings just hatched on July 28th; and subsequently noticed that the parents had their cheeks distended with a reddish substance, consisting of immense numbers of minute crustaceans, which were evidently intended as food for the young. In autumn and winter the Little Auk feeds on animal offal, and is then fond of staying close to fishing-vessels at anchor; while on the approach of a vessel it has a peculiar way of splashing along the surface of the water—as if unable to fly—and then diving through the crest of an advancing wave. As Mr. Abel Chapman has remarked, it swims rather deep, and very much "by the stern."

The adult has a small white spot over the eye; head and upper-parts greyish-black; chin and throat sooty-black in summer, white in winter, and mottled with black and white in spring and autumn; breast and belly white; beak leaden-black; irides hazel; legs and toes slate-colour, webs darker. Length 8·5 in., wing 4·65 in. The young bird resembles the adult in winter-plumage. White and isabelline varieties are sometimes met with.

In the Southern Hemisphere there is a genus of small oceanic Petrels (*Pelecanoïdes*), the members of which bear a strong superficial resemblance to the Little Auk in size, form, colour, and mode of flight; but on closer examination, they may at once be recognised by their tubular nostrils.



THE PUFFIN.

FRATÉRCULA ÁRCTICA (Linnæus).

The Puffin is the representative in the Atlantic of the well-marked sub-family *Fraterculinæ*, whose other members are confined to the North Pacific, the head-quarters of the *Alcæ*. Even in winter it is seldom altogether absent from British waters; while from the end of March to early in April or May—according to latitude—it begins to return to its breeding-places, which it leaves with great regularity in the latter part of August. At the present day comparatively few nest in the Isle of Wight, or on the mainland of Dorsetshire, Devon and Cornwall; but numbers breed in the Scilly Islands, and myriads burrow in the slopes of Lundy Island, which consequently received its name (*lunde* puffin, *ey* island) from the Scandinavian rovers who formerly resided there. Many haunts exist in Wales, as well as a few in the Isle of Man; but the Flamborough range of cliffs, and some of the Farne Islands, are the only resorts known on the east side of England. In Scotland large colonies are very plentiful, and the swarms of birds going and coming round many of the islands in the Hebrides, especially St. Kilda, make the horizon seem quite hazy; while the same may be

said of the wilder parts of Ireland. During stormy weather the Puffin is frequently driven far inland, and an individual has been known to fly through an open window in Brook Street, London.

This species is the most abundant of the rock-birds which visit the Færoes, and there are vast colonies on the coast of Norway—especially north of the Arctic circle—as well as in Iceland. A large race from Spitsbergen has been distinguished by some ornithologists as *F. glacialis*, and it is probably this which occurs sparingly in Novaya Zemlya, and more plentifully on the coast of Greenland up to 70° N. lat. Southward, our form breeds on the Atlantic coast of America down to the Bay of Fundy, migrating in winter as far as Massachusetts. Returning to Europe, the Puffin nests on many of the smaller Channel Islands, as well as on the coast of France, and I observed numbers off the Berlengas Islands in June; while in winter the bird is not uncommon in the Mediterranean as far east as Sicily, and it has wandered to the Canary Islands.

In May a single egg is deposited in the fissure of a cliff, or at some distance down a burrow in short turf or loose soil; it is at first of a dull white, freckled or even zoned with pale brown or lilac, but the rough granular shell soon becomes stained: measurements 2·25 by 1·6 in. In some places the eggs are laid under stones, or without cover on ledges. Incubation lasts fully a month, and the nestlings, which are covered at first with black down, remain for about three weeks in their retreat; being fed with herring-fry and other small fishes, carried transversely in the bills of their parents—as many as eight at a time. Crustaceans and other marine creatures are also eaten; the birds going out to procure food with great regularity, and flying long distances—sometimes fifty miles—on the quest. When on land Puffins rest on the whole length of the foot and heel, and walk with a waddling gait; but they fly rapidly, and can swim and dive well. They fight fiercely, sometimes holding one another till both are drowned. "Sea-Parrot" and "Coulter-neb" are among the commonest of the English local names.

A detailed description of the adult in summer is rendered unnecessary by the figure; length 13 in., wing 6 in.; Spitsbergen examples being larger. In autumn the horny frontal sheath of the bill is shed in several pieces, and the bill is consequently much smaller in winter, as well as duller in colour. The young bird has a less developed and shallower beak; the sides of the head are deeper grey, and the space in front of the eye is sooty-black; in some cases the dark face is partially retained when the bird begins to breed, in its third year. Albinisms are not rare.

THE GREAT NORTHERN DIVER.

Colýmbus glaciális, Linnæus.

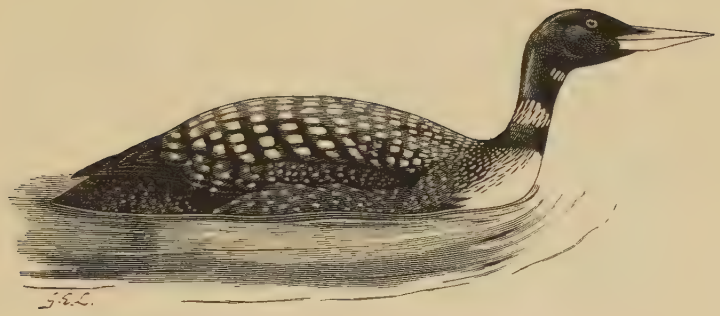
This fine bird (sometimes called the Immer- or Ember-Goose) is the largest of the three Divers which regularly occur in British waters. The young generally come close to the shore, and are therefore more frequently obtained on our estuaries and in our narrow seas than the adults; the latter being, however, occasionally abundant off South Devon and Cornwall, and all round Ireland, especially in the west. They occur along the west of Scotland, even as late as the month of June, and from the north of the last country, indeed, they are seldom long absent; while there have been grounds for surmising that a pair or two may have bred occasionally in the Shetlands, where adults have been observed during summer. There are many instances of the occurrence of this species during migration on lakes and meres in various parts of the United Kingdom.

In winter the Great Northern Diver is found along the Atlantic

sea-board of Europe, while it also visits the Mediterranean and Black Seas, and immature birds are often found on inland waters. It is well known in the Færoes and Norway from autumn to spring, but it seldom goes far up the Baltic; and in the Arctic portions of Russia and Siberia its representative appears to be *C. adamsi*, the next species. The Great Northern Diver is, in fact, a western species, and its eastern breeding-limit appears to be in Iceland, where a pair or two are found on nearly every lake; it also nests plentifully in the southern districts of Greenland and up to about 70° N. on both sides; while in North America, where it is known as the Loon, it is found in summer throughout the Fur countries below the Arctic circle, and down to Maine. At Great Slave Lake it meets with *C. adamsi*; in winter it ranges southward to California and Mexico.

The nest—always near fresh water, and placed on an islet holm or the margin of a lake—is usually composed of flattened herbage and moss. The eggs, which are normally 2 in number, are usually laid in the second half of June, and occasionally on the bare ground; they are olive-brown in colour, with a few darker spots, and measure 3·5 by 2·5 in. A distinct track is often made by the bird, on its sliding and floundering progress to and from the water, and safety is usually sought by diving rather than by taking wing. The food consists of crabs, and largely of fish; and a Diver has been captured in the meshes of a trammel-net 30 fathoms below the surface of the sea. The cry—frequently uttered by night—has been described as a weird and melancholy howl, and at other times as a rather pleasant trumpeting, while a low croak is also emitted.

The adult has the bill black; irides crimson; head and neck black, glossed with purple on the upper throat and with green on the lower neck; about 12 white streaks on the upper throat-band and 18 on the lower; mantle black with white spots, those on the scapulars being as broad as they are long; belly chiefly white. Length 30–32 in., wing 13–14 in.; males being decidedly larger than females and often weighing upwards of 8 lbs. here, while reaching 15 lbs. in America. In autumn the black throat-bands are lost for a time. The young bird has the feathers of the upper-parts greyish-black, with paler margins; under surface dull white; bill brownish horn-colour.



THE WHITE-BILLED NORTHERN DIVER.

COLYMBUS ADAMSI, G. R. Gray.

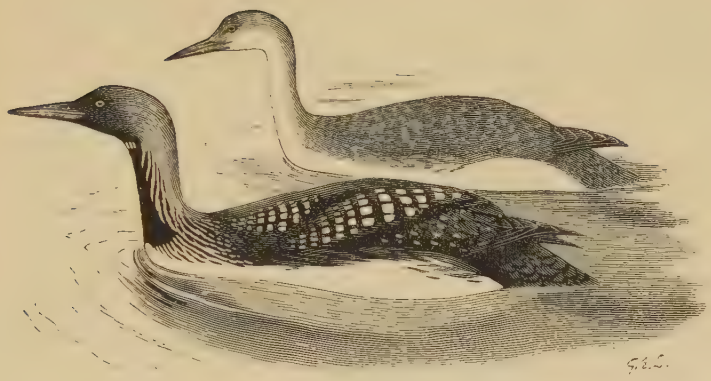
This Diver is the Arctic representative of the preceding species, from which it differs in several important particulars. The bill, which is yellowish-white at all seasons, is deeper and has the under mandible remarkably upcurved from the angle; the head and upper neck are glossed with green, while the lower neck is tinged with purple (the reverse of the arrangement in the Great Northern Diver); the white streaks of the transverse band on the throat are not more than 8 in number, with fewer than 10 on the lower neck; the white spots on the scapulars are decidedly longer than broad; while those on the flanks and upper tail-coverts are smaller than in the sub-Arctic species; and finally, this high northern form is superior in size. Some of these distinctive features had attracted the attention of the late Sir James Clark Ross, who virtually discovered this bird on Boothia in 1830, though it was only named in 1859 by G. R. Gray; but until Seebohm worked out and summarised the points of difference (Zool. 1885, p. 144), its claims to recognition were somewhat coldly received.

Early in the spring of 1852 an example, which is now in the collection of Mr. J. H. Gurney, was shot at Pakefield near Lowestoft, and subsequently the late Dr. Churchill Babington figured in his 'Birds of Suffolk' an immature specimen, believed to be from that county; while one in winter-plumage, in the Museum at Newcastle, was obtained on the Northumbrian coast. One was killed by the late Mr. Booth on Hickling Broad in December 1872; and the Rev. J. E. Kelsall states that a specimen was secured in the winter of

1895–96 in Hampshire. Dr. R. Bowdler Sharpe has recently identified, in the collection of Mr. Bulkley Allen of Altrincham, a young bird shot on Loch Fyne, late in the autumn of 1893.

During the breeding-season the White-billed Diver appears to be circumpolar in its distribution. It may be this large species—and not *C. glacialis*—that is found on the island of Jan Mayen and has been observed in Spitsbergen; while in 1895 and 1897 birds were observed, by members of Mr. Pearson's Expeditions, at two places in the southern island of Novaya Zemlya; and the species probably occurs in Arctic Russia. Prof. Collett has shown (Ibis 1894, pp. 269–281) that many individuals have been obtained in Norway; and a young bird shot in Upper Austria in 1840 has recently been referred to this species. In Siberia Mr. Popham was told that the species was very rare on the Yenesei, but he received a skin from the Boganida district, and Middendorff stated long ago that the birds he obtained on the Taimyr peninsula had yellowish-white bills. Eastward this Diver was found nesting on the Chuckchi peninsula, in 1879, by Lieut. Palander of the 'Vega,' and it can be traced to the islands of Bering Sea and Alaska. In the last it is at least predominant, though further south, as well as round Great Slave Lake, it meets with *C. glacialis*; no intermediate forms being known. In winter it ranges through the North Pacific down to Japan; while, as already indicated, it is found in summer throughout America to the north of the Arctic circle.

Messrs. Nelson, R. MacFarlane, or other explorers of the Fur countries, give no special description of the breeding-habits of this species, but in all probability these do not differ from those of the Great Northern Diver. The two eggs from which Lieut. Palander shot the hen-bird near Pitlekai, Chuckchi peninsula, on July 10th, averaged 3·65 by 2·3 in. The 'laugh' is said to be somewhat harsher than that of its congener. The distinctions between the two species have already been mentioned; but it may be added that the length of a male bird is about 33 in., and of its wing 15·1 in.



THE BLACK-THROATED DIVER.

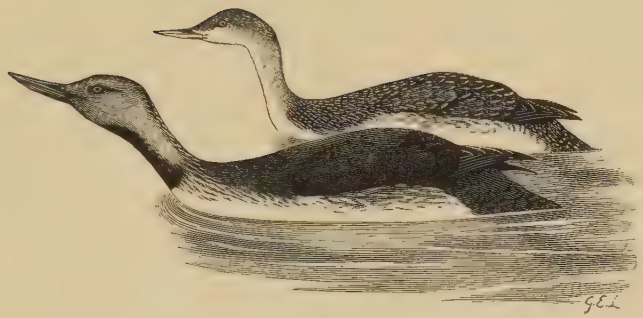
Colymbus árcticus, Linnæus.

The Black-throated Diver is by far the rarest in winter of the three species which annually visit the coasts of England; and the examples obtained generally prove to be immature birds, although adults are sometimes met with as far south as the Channel, and westward to the estuary of the Dart in Devon, or occasionally in Wales. Few occurrences are known in Ireland at any season, though birds with full black throats have been recorded as late as the month of April by Mr. R. Warren from the mouth of the Moy, and by Mr. L. Patterson from the neighbourhood of Belfast. In Scotland, as long ago as 1834 this Diver was shown by Jardine and Selby to be a breeding-species in Sutherland, and it is now known to be widely though thinly scattered over the counties of the north and west; and a pair of birds—with their nest cut out from the soil, procured in Caithness by Col. L. H. L. Irby and Capt. S. G. Reid—fill an attractive case in the British Museum. Several of the lochs of Inverness-shire, Perthshire, Ross and Argyll, as well as many in the Outer Hebrides, afford congenial summer-quarters, and Mr. T. E. Buckley observed birds during May, June and July on some of the lakes of Rousay in the Orkneys. Up to the present time the Black-throated Diver is not known to have been obtained in the Shetlands at any season of the year; but Mr. Thomas Edmondston has recently informed me that he identified the species on two occasions in the western portion of Mainland, and has also received its eggs from that locality.

The Black-throated Diver has been recorded as an exceptional visitor to the Færoes; while in winter it is met with on the coasts and inland waters of the Continent down to the Mediterranean, Black and Caspian Seas. In summer it is decidedly rare as a breeding-species to the southward of the German side of the Baltic, but northward and eastward it is very abundant on the lakes of Scandinavia, Finland and Russia; while, by way of Kolguev and the south island of Novaya Zemlya, it can be traced across Siberia to the Pacific. In winter it visits Japan. Arctic America, especially to the west of the line of the Rocky Mountains, is inhabited by a form with a paler nape; but our bird seems to occur over the eastern area. It has not yet been identified in Greenland, Iceland, Jan Mayen or Spitsbergen.

In Scotland the margin of a green island in some fairly large fresh-water loch is usually selected; the 2 eggs being laid in May, often on a substantial mass of crushed vegetable matter; they vary in colour from olive- to russet-brown, with sparse spots of black or umber: measurements 3·25 by 2·15 in. In the Petchora district Messrs. Harvie-Brown and Seebohm found a large floating nest, partially supported by aquatic plants. Mr. S. Graham informs me that he knows a mountain-loch in Argyll where, on three occasions, the first and second clutches of eggs were taken, after which a third clutch was produced and hatched. Incubation lasts 28 days (W. Evans). The cry of this Diver is loud and discordant, the flight is said to be unusually rapid, and the food consists chiefly of fish.

The adult in summer has the crown and hind-neck ash-grey; upper-parts nearly black, barred and spotted with white; chin and throat purplish-black, with an intermediate half-collar of short white streaks; sides of the neck striped with black and white; under-parts white; bill black; irides red; legs and feet brown. Length about 27 in.; wing 11·75 in. Females are but slightly smaller than males, and both sexes, when mature, have black throats. By the middle of September the autumnal moult is completed, and the chin, throat, and under-parts are then white, while the upper plumage is chiefly ash-brown. The young bird has the hind-neck of a much purer grey than the immature Northern Diver, which it otherwise resembles in its general plumage; it is, however, decidedly smaller.



THE RED-THROATED DIVER.

COLYMBUS SEPTÉNTRIONÁLIS, Linnæus.

This species, the smallest member of the genus, is also the most abundant in the British Islands; immature birds and—in fewer numbers—adults with the white throats characteristic of winter-plumage being found on all our coasts from autumn to spring. In April examples with red throats may be noticed, and these increase in frequency as we proceed northwards; until in Scotland this Diver is found breeding, in variable though sometimes considerable numbers, in most—if not all—of the Hebrides, and on the mainland from Argyllshire upwards, as well as in the Orkneys and Shetlands. To Ireland it is a regular visitor during the cold season, and, in spite of the egg-collector, a pair or two sometimes manage to rear their young on some of the loughs in Donegal. In pursuit of fish this Diver frequents estuaries and is often met with far up rivers, sometimes occurring on inland waters in winter as well as in summer.

Northward the Red-throated Diver has been observed up to lat. 82°, while it breeds plentifully in Spitsbergen, and throughout the Arctic and sub-Arctic regions of Europe, Asia and America. In Europe its migrations extend to the Mediterranean, Black and Caspian Seas, though the bird is less frequently noticed on inland waters than its congeners; and Gätke has recorded, under date of December 22nd 1879, a passage of large numbers off Heligoland. Von Heuglin says that he has seen immature examples on the lagoons of Lower Egypt in winter; at which season the range of this species reaches Japan, China and Formosa in Asia, and Maryland in America.

When breeding, this bird frequents more desolate spots than the Black-throated Diver, and generally prefers the margins of small tarns or even pools—often at a considerable elevation—to islands in a large loch. Sometimes there is a slight nest-border of heather or bents, but usually the 2 eggs are laid on the trodden-down turf or weeds, and so close to the water's edge that they are often moist underneath; their colour is olive-brown, spotted with umber: measurements 2·75 by 1·8 in. In Scotland they may be found fresh from the middle of May to a month later, while more than one pair of birds seldom inhabit the same piece of water; but on the Porsanger Fjord in West Finmark Prof. Collett discovered fifteen nests in half an hour, and also found that the male shared the duties of incubation. The sitting bird lies flat down on the eggs, and, when disturbed, glides into the water, and at first swims very low; then, bending the head and neck forward, it disappears with a gentle plunge which hardly leaves a ripple; but I have noticed that if my stay near the nest was prolonged, the bird would swim high, snapping the mandibles and turning the head with a jerky action, while occasionally stopping to drink. Mr. Henry Evans informs me that at times this Diver rises from a lake in the hills, and after ascending to a great height, rushes down to the sea at a speed which produces a sound "like blowing-off steam," the descent terminating in a glide just before the water is reached. Mr. Caton Haigh says that this bird can sit, and even walk, in a fairly upright position. The note is a harsh *kark*, *kark*, *kakera*, and is supposed to foretell wet or stormy weather; for which reason the bird is widely known as the "Rain-goose." The food consists chiefly of fish, which is often procured in summer in open waters, at some distance from the breeding-place.

The adult male in March has the crown and nape slate-grey, streaked with white; sides of the head and neck paler grey; a long, triangular patch of vinaceous chestnut down the middle of the fore-neck; upper surface chiefly ash-brown; under-parts white, with greyish-black spots on the flanks. Length 24 in., wing 11·2 in.; females being smaller. After the autumn-moult the red on the throat is lost for a short time, and the upper plumage is spotted and streaked with white. In the young bird the feathers are edged, rather than spotted, with white.

THE GREAT CRESTED GREBE.

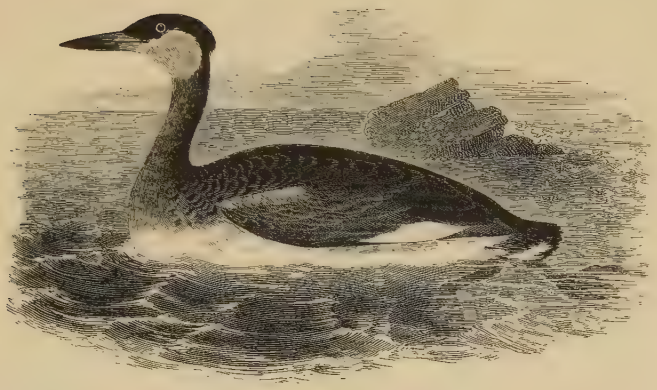
PODÍCIPES CRISTÁTUS (Linnæus).

The Great Crested Grebe is more or less resident in England and Wales on extensive sheets of water partially overgrown with reeds; such as the 'broads' of Norfolk, the meres of Yorkshire, Shropshire, Cheshire and Lancashire, Llangorse Lake in Breconshire, the reservoirs of Notts, Leicestershire, Northants, Bedfordshire, and Tring in Hertfordshire, Virginia Water in Surrey, and many similar localities; in fact, its increase during the last decade has been remarkable. In Scotland, it is now known to breed on at least eight lochs, as far north as Perthshire and probably Aberdeenshire; while it has occurred in the Orkneys, though there are few satisfactory records from the Hebrides. In Ireland it nests on many of the fresh waters, especially in the district round Lough Neagh; while in winter it may be met with on many parts of the British coasts. In Norfolk it is generally called a "Loon," in Lincolnshire it was formerly known as a "Gaunt," and in the north-east of Ireland its name is "Mulrooken."

This species is only a straggler to the Færoes, and an accidental visitor to Norway; but it breeds in Southern Sweden, Denmark, and on both sides of the Baltic; becoming exceedingly abundant in some parts of Russia, Poland, Germany and Hungary. Southward it nests in suitable localities down to the Mediterranean, as well as in North Africa, Palestine, Northern India, Central Asia and China, visiting South Japan; while it is also resident in South Africa, some parts of Australia, and in New Zealand. There is no authenticated record for any part of America (Ridgway).

The nest is usually a mass of wet aquatic plants floating on the surface of the water; the eggs, which are sometimes as many as 5 in number, are usually laid in April and May and are of a chalky-white (with a green lining-membrane) when fresh, but they soon become ochreous-brown from contact with the decomposing vegetable matter: measurements 2·2 by 1·5 in. On leaving her nest, the female covers them with weeds if time allows. Both parents are very careful of their young, which repose upon the backs of the old birds just beyond the insertion of the wings. The food consists of young eels and other small fish, crustaceans &c.; while tadpoles and frogs are also eaten; and feathers are frequently swallowed and brought up in castings, together with fish-bones and other indigestible substances. This bird may often be seen flying at a considerable height, like a wild duck. Its call-note is a harsh croak; the alarm-note being *kek*, *kek*.

The adult male in March has the crown and crest dark brown; stripe over the eye white; cheeks white; tippet chestnut, blackish at the margin; upper-parts dark brown; carpals and secondaries white, and very conspicuous in flight; under-parts silver-white; bill ruddy; iris crimson; legs and feet olive; length 21 in., wing 7·5 in. Females are rather smaller, and have the tippet and crest less developed; and after the autumn moult these ornaments are absent for a time in both sexes. Little crest or chestnut-colour is shown by the young until the second year. The curiously striped nestling is figured below.



THE RED-NECKED GREBE.

PODICIPES GRISEÍGENA (Boddaert).

The Red-necked Grebe is tolerably common in suitable localities along the eastern coast of Great Britain from autumn to spring, and sometimes a great influx is observed, as in 1865 and again in 1897 in Norfolk, in January 1891 in Yorkshire, and on the coast of East Lothian in the early part of 1895. In the Channel this species is of irregular occurrence until Cornwall is reached, where, according to Rodd, it is not infrequent. Turning northwards, it is decidedly rare along the coast of Wales and on the west side of England and Scotland, while it is as yet unrecorded from the Outer Hebrides; it has, however, been taken in the Orkneys and the Shetlands. In Ireland only five or six birds have been recognised, at long intervals, on the eastern and southern coasts. Examples in breeding-plumage are sometimes obtained in our islands.

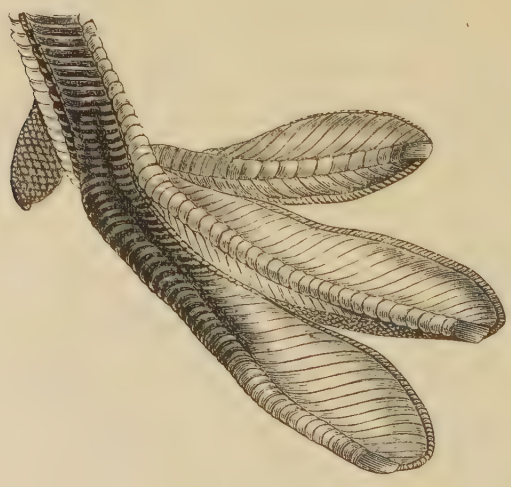
This Grebe is resident in the southern districts of Norway, and breeds on some of the waters of Denmark, Northern Germany and Holland, whence it migrates in autumn to our eastern shores. It is also plentiful throughout the Baltic, and as far north as the reedy lakes at the head of the Gulf of Bothnia; while in Russia it is found nesting from Archangel to the Black and Caspian Seas. Over the rest of Europe it is chiefly known as a migrant, passing along the Rhone valley, as well as by the Swiss lakes, to the Mediterranean; it also visits North Africa, and in Morocco Col. Irby has seen birds so young that they must have been reared

in that country. In Asia it appears to be found as far as Eastern Turkestan and Siberia, where it meets with a larger form, distinguished by some ornithologists as *C. holboelli*; and this is the representative in the North Pacific, and North America in general, as well as in Greenland, where it was first discriminated by Reinhardt. A bird obtained in Iceland in December 1885 may have belonged to this form.

The nest is a floating structure, similar to that made by the preceding species, in the company of which the Red-necked Grebe may often be found breeding in Northern Germany; the eggs are dull white, and elliptical in shape, as are those of all the members of this genus: measurements 2 in. by 1·3 in. This bird resembles its larger congener in its general habits, diving-powers and food, but its note is said to be somewhat louder.

The adult has the bill dark horn-colour, yellow at the base; irides yellowish-white; crown, nape and hind-neck blackish; feathers of the cheeks, chin and throat grey, those *below* the eye having white margins which form a strongly contrasted streak; upper-parts dark brown, with a conspicuous white patch on the secondaries; neck in front rich chestnut-red; breast and belly silky-white. Length 18 in., wing 7 in. In winter the throat is greyish-white; as it also is in young birds, which are duller in general colour.

The figure below shows the appearance of the foot in the Grebe.



THE SLAVONIAN OR HORNED GREBE.

PODICIPES AURÍTUS (Linnæus).

The Slavonian Grebe is a northern species, and its occurrence on the southern and western shores of England seems to be irregular even in winter, although the bird is an annual visitor in small numbers to the coast of Wales; but on the east side it is frequently met with from autumn to spring, especially in Norfolk and at the mouth of the Humber, as well as further to the northward. In Scotland it is generally distributed on both coasts, and in the Hebrides, Orkneys and Shetlands it is even common; but a statement that it nested on some fresh-water lochs near Gairloch in Ross-shire was the result of erroneous identification (*cf.* Ann. Scot. N. H., i. p. 171). This Grebe is a regular, though not an abundant, visitor to Ireland in autumn and winter, especially to certain bays in the north and west, and adults have been obtained on the spring-migration.

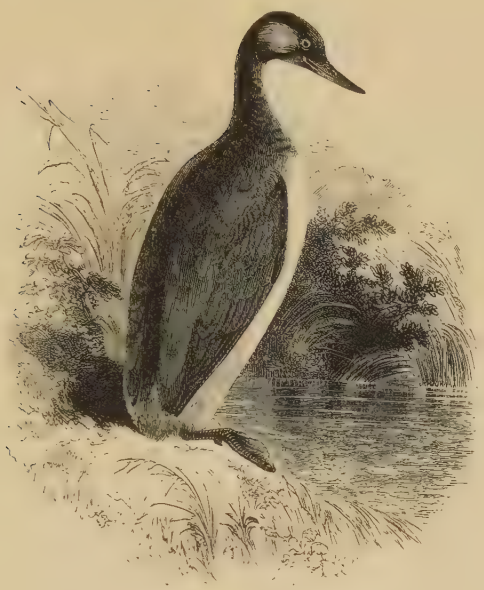
It is only on migration that this species is found in the Færoes, but it breeds regularly in Iceland, Scandinavia and Russia, and sparsely in Denmark; while in the colder months it is known throughout the rest of Europe, down to the Mediterranean, where, however, it is rare. In Asia, it ranges across Siberia to Japan, and about as far south as lat. 24° N. during the cold season; in America, it is common

in Alaska and throughout the Fur countries in summer, visiting the northern portions of the United States in winter, and occasionally wandering to the Bermudas. Young birds have been met with in the southern part of Greenland; and an adult female was obtained by the Austro-Hungarian Expedition on June 23rd on the Island of Jan Mayen, the most northern occurrence on record.

The nest, composed of reeds and other aquatic plants, is usually rather large and floats on the surface of the water, but Dr. Krüper says that he has found it in a tussock of grass, and once on a stone. The eggs 2–4, or sometimes 5 in number, are of a bluish-white colour when first laid, though they soon become stained: measurements 1·8 by 1·25 in. The female dives with the young under her wings, when Proctor observed that the position of the nestlings was with their heads towards the tail of the parent bird, their bills resting upon her back. Messrs. Slater and Carter repeatedly noticed the adults swimming under water after leaving the nest; their legs, which may almost be called terminal instead of lateral members, giving them somewhat the appearance of large frogs. The food of this species is similar to that of its congeners.

Full breeding-plumage is not assumed till April. The adult male (figured on the left) has then a tuft of elongated pale chestnut feathers on each side of the head; crown, forehead, chin and tippet black; upper parts dark brown; secondaries chiefly white, except the three outer ones, which are mainly dusky, like the primaries; neck, breast and flanks warm chestnut; belly white; bill straight, nearly black, except the tip which is whitish; irides red; legs and toes dark greenish-brown outside, yellower on the inner surface. Length 13·5 in.; wing 5·5 in. The female is rather smaller and has less developed head-ornaments, but otherwise the sexes are alike externally. After the autumn moult the irides are paler, the crest and tuft are absent, and the under-parts are chiefly white, the throat and flanks being streaked with dusky grey. Young birds bear a general resemblance to the adults in winter-plumage, but the cheeks are of a duller white, while the flanks and belly are browner.

It is unfortunate that the specific name *auritus*, which Linnæus undoubtedly used for the Slavonian Grebe, should have been diverted by Latham and other authors to the next species; great confusion being thereby caused.



THE BLACK-NECKED OR EARED GREBE.

PODICIPES NIGRICÓLLIS, C. L. Brehm.

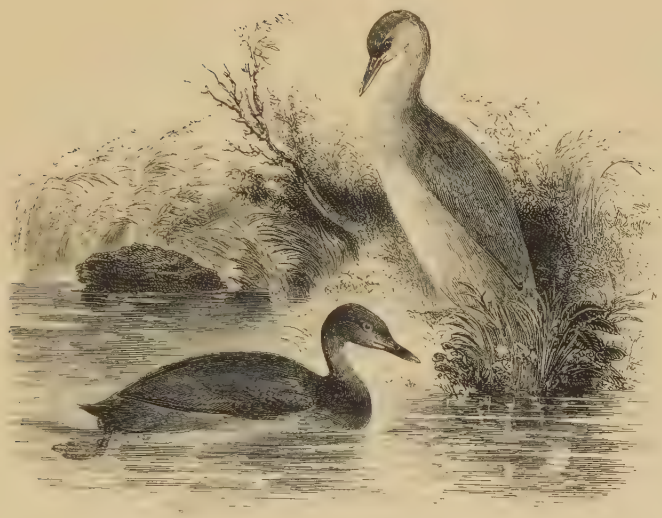
This Grebe is rather smaller than the preceding species; and is chiefly a southern bird which at intervals pushes its migrations in spring and summer as far to the north-west as the British Islands; it also visits us—though more rarely—in autumn and winter, to escape the severe cold of the Continent. Individuals in complete breeding-dress have been obtained occasionally in most of our southern and eastern counties; and there is even strong presumptive evidence that the bird has bred in Norfolk, for Booth had "a full-plumaged adult and a couple of downy mites" brought to him by a marshman (*cf.* Tr. Norfolk & N. Nat. Soc. vol. iv. p. 416, footnote). Northward, this Grebe is fairly common on the coast of Northumberland; beyond the Tweed, however, it becomes scarcer, though it can be traced to the Orkneys, but not to the Shetlands. On the west of Scotland the only authenticated occurrences appear to be those of an adult on Loch Sunart in the spring of 1866, one in Skye in January 1895, and a pair shot on the Nith. A few instances are on record from Cumberland, Lancashire, and the Isle of Man; while the bird is a regular visitor in February and March to the coast of Merionethshire, and has been obtained in Pembrokeshire. In

Ireland two examples in full plumage have been obtained in June, and a few birds appear to have been met with during the colder months.

The Black-necked Grebe is merely a wanderer to the southern portions of Scandinavia; but Benzon assured Mr. Dresser that it bred regularly near Thy, in the north-west of Jutland, and Mr. Hartert says that it nests freely in East Prussia. Southward it breeds in suitable localities throughout the greater part of Europe, becoming abundant in the countries bordering the Mediterranean and Black Seas; while it is even more plentiful in North Africa, whence it ranges southward to the Cape. In Asia it is widely distributed over the temperate regions, as far east as the Pacific and down to about 22° N. lat. in winter. In North America it is represented by the closely-allied *P. californicus*, which has hardly any white on the innermost primaries or the outer secondaries. Neither species is found in Greenland.

Canon Tristram found this Grebe on Lake Halloula in Algeria, "in societies more densely crowded than any rookery"; the nests being "raised on artificial islets, frequently almost touching each other, and sometimes piled on stout foundations rising from more than a yard under water." Benzon states that in Denmark the nests he saw were not floating amongst the reeds, but were on tussocks at the edge of the lake, though in places where the water was deep and clear; they were made chiefly of "moss," and with this the female covers up her eggs on leaving them. These, up to 5 in number, are yellowish-white when laid, but afterwards become brown, owing to stains: measurements 1·65 by 1·15 in. The note is described by Naumann as a soft *beeb* or—in the pairing season—a reiterated *bidder*; the food consists of fish, crustaceans, coleopterous insects &c. The late Mr. Gatcombe told me that he had seen this and other Grebes dive when in deep water with a leap, as a Shag does.

The adult male in breeding-plumage—assumed in March—has the head and neck black, with a triangular patch of long hair-like feathers of a golden chestnut-colour on the ear-coverts; upper parts dark brown; secondaries almost entirely white to their tips, while there is also a great deal of white on the four inner primaries; breast and belly white, flanks dull chestnut; bill black, upcurved in front of the angle. Length 12 in.; wing 5 in. The female is rather smaller. After the autumn moult the ear-tufts and black on the throat are lost, only a dusky band remaining on the latter; the plumage of the young resembles that of the adults in winter.



THE LITTLE GREBE.

PODICIPES FLUVIÁTILIS (Tunstall).

This species—familiarly known as the Dabchick—is resident and generally distributed on the reedy streams, lakes and ponds of England; it may even be found nesting on some of the ornamental waters of London, notably in St. James's Park. In Scotland it is less plentiful, though found northward to the Shetlands, and westward it nests in the Outer Hebrides, while it breeds up to an elevation of 2,000 feet or even more in the Highlands; it is however more frequently noticed in winter, when there is less chance of concealment and the freezing of the inland waters drives it to the coast. In Ireland it is common, and breeds in every county.

The Little Grebe is seldom met with in the Færoes and has not yet been recorded from Iceland; while in Norway its range seldom extends beyond lat. 62°. On both sides of the Baltic it is rare, even in summer; but it is of tolerably general distribution over the rest of the Continent, and is resident in the south; as it is in temperate Asia as far east as Japan, and also in North Africa. Very closely-allied forms are its representatives in South Africa, Madagascar, Southern Asia, the Malay archipelago, Northern Australia, New Zealand, and North America.

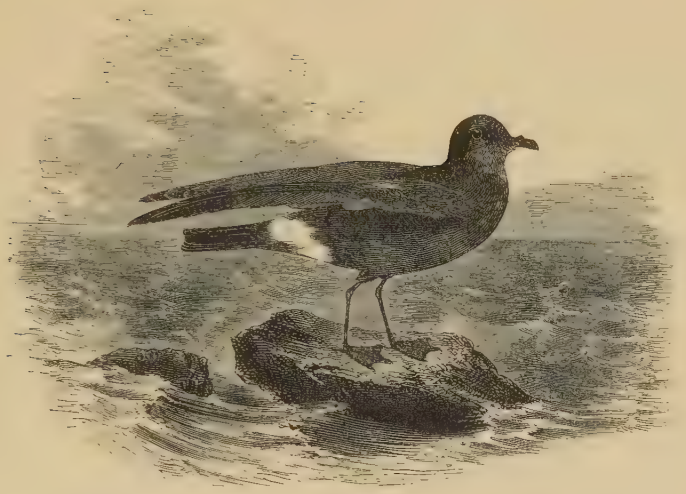
The nest—which is somewhat large for the size of the bird—is composed of and moored to aquatic plants, or shrubs; and in it

from 4–6 eggs, rather pointed at both ends, are deposited between April and August ; two clutches being often produced in the season. Their colour is creamy-white, until stained adventitiously ; and their measurements are 1·5 by 1 in. The sitting bird, on leaving the nest, almost always covers them with weeds, which are plucked by the bill with astonishing rapidity. Incubation lasts about 20 days. The food is usually small fish, insects and vegetable matter, but in winter marine animals are often consumed. Like other Grebes, this species swallows feathers ; it also carries its young on its back, as described in the cases of the Great Crested and Slavonian Grebes. Prof. Newton has stated (Ibis 1889, p. 577) that a bird which could not have been more than twelve hours old, crawled upon and crossed a table from side to side, dragging itself forward by means of its wings quite as much as impelling itself by its legs. The note of the old bird is a *whit, whit.*

The adult male in spring (represented swimming in the foreground) has the head, neck and upper parts dark brown ; very little white on the secondaries ; chin black ; cheeks, throat and sides of the neck reddish-chestnut ; under-parts chiefly greyish-white ; flanks dusky-brown ; bill horn-colour, yellowish-green at the gape ; irides reddish-brown ; legs and toes dull green. Length 9·5 ; wing nearly 4 in. The female is slightly smaller. In winter the chin is white, and the head and neck are clove-brown, the general colour being paler. The young are still duller in tint, with dusky streaks on the sides of the head.

In ' Research ' for January 1st 1889, Mr. R. Newstead, curator of the Chester Museum, called attention to some interesting points in the anatomy of this Grebe and some others. The fibula is not fused to the tibia, but is connected with it along the whole length by a very strong ligament, so that by taking hold of the foot the tibia can be made to rotate ; while there is a perforated and grooved bone at the back of the tarso-metatarsus, which has three perforations and carries eight tendons. Diagrams illustrative of the above were kindly sent to me by Dr. W. H. Dobie, of Chester.

An example of the American Pied-billed Grebe (*Podilymbus podicipes*)—so young that it exhibited longitudinal stripes on the neck—was exhibited by Dr. R. Bowdler Sharpe at the meeting of the Zoological Society of London on June 21st 1881, and was stated to have been killed near Weymouth in the previous January. There had probably been an accidental exchange of specimens by the dealer, for he sold the bird as merely a Little Grebe.



THE STORM-PETREL.

PROCELLÁRIA PELÁGICA, Linnæus.

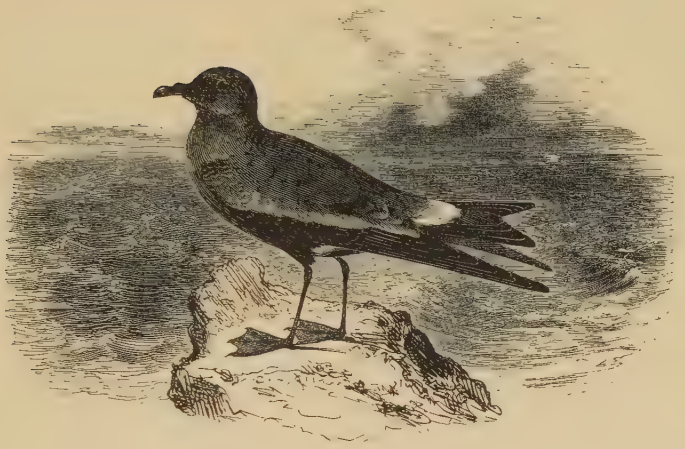
The Storm-Petrel is generally distributed throughout British waters; and during rough weather it is often met with inland, especially at the time of the autumnal migration, when individuals are frequently taken whilst fluttering against the lanterns of light-houses and light-ships. Unusual numbers occurred between October 27th and November 4th 1883 on the east side of England; and in 1886, according to Mr. Harvie-Brown, "a regular stream of migration of Petrels seems to have taken place with the 'great rush' of other species on the 5th–6th of October, as they were reported from several stations"—in Scotland. The same writer adduces evidence that this bird remained on South Uist during November, December, and January 1822–23; though as a rule it does not voluntarily approach the land until May. In Scotland and Ireland its breeding-places are numerous, owing to the abundance of low islets and other suitable situations; there are several on the coast of Wales and one in the Scilly Islands, while a few pairs are believed to nest on an islet off Lundy; eastward of which no resorts are known in England.

Southward, this species breeds in the Channel Islands and along the coast of Brittany, as well as on both sides of the Mediterranean as far as the Ionian Sea; while storm-driven examples have been obtained far inland on the Continent. It visits the Azores, Madeira

and the Canaries, and has been traced down the coast of Africa as far as Cape Town during our winter months. Returning northward, we find it nesting plentifully in the Færoes, and it occurs, though it probably does not breed, on the coast of Norway, up to lat. 69°; it also visits Iceland, Southern Greenland, the Bay of Fundy and Newfoundland, but is not known to nest along the American sea-board.

As a rule the Storm-Petrel does not begin to lay until the second half of June, though Mr. Turle found eggs on the Blaskets in the last week of May; on the other hand a young bird has been found in the nest as late as October 18th, and in the Færoes up to November. A slight bed of grass-stems is sometimes made at the end of a burrow in turfy soil, or else beneath stones, or in crevices of rocks; but the single white egg—often faintly spotted with rusty dots—is also laid on the bare soil: measurements 1·15 in. by ·85 in. Incubation lasts about 35 days. A strong odour of musk pervades the burrow and its contents; and the sitting bird utters a note which is syllabled by Messrs. Harvie-Brown and Buckley as *ti-tee-tick*, repeated several times in succession. The food consists of crustaceans, molluscs, small fish, and fatty matter of any kind; the last being frequently obtained by following in the wake of vessels. In fast steamers it is almost impossible to capture this and similar species, but when a sailing ship is going slowly through the water there is no difficulty in entangling them by trailing long threads—slightly weighted at the end—from the taffrail; sailors, however, consider this proceeding unlucky, although they do not necessarily connect the appearance of these birds with foul weather, as has been asserted. In captivity the Storm-Petrel has been kept alive on oil for three weeks. This and some other members of the family are known by sea-faring folk as Mother Carey's Chickens (perhaps a corruption of *Mater cara*); while their habit of paddling along the waves is supposed to have been the origin of the word Petrel, after the Apostle Peter, who essayed to walk upon the water.

The adult has the upper parts sooty-black, but the tail-coverts are white at their bases, while the edges of the wing-coverts are slightly edged with white; under surface sooty-black, sides of vent white; bill, legs and feet black. Length 6·5 in; wing 4·7 in. In this species, as is the case with all the Petrels, the sexes are alike in plumage. The young bird is rather browner than the adult, and shows little or no white on the wing-coverts or vent. Mr. J. H. Gurney has an albino example.



LEACH'S FORK-TAILED PETREL.

OCEANÓDROMA LEUCORRHÓA (Vieillot).

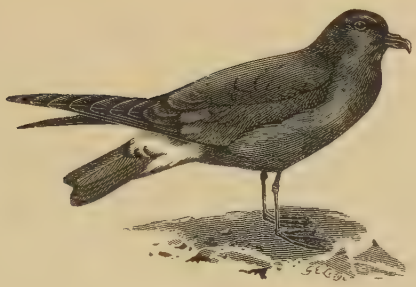
This species was first made known as a British bird by Bullock, who obtained it at St. Kilda in 1818. Subsequently it has often been noticed within our waters, and it is now met with almost annually on the east coast of England, as well as in Wales. It also occurs inland, especially after northerly and westerly autumnal gales, from which fact Mr. Cordeaux infers that birds are driven right across the country. Off Cornwall it is quite as common in some winters as the Storm-Petrel, and it may be said to have been taken in almost every maritime county of Great Britain; while unusual numbers were noticed on the Scottish coast in the autumn of 1891 (W. Evans). In 1847 it was found breeding in the St. Kilda group, and later investigations have shown that further colonies exist on North Rona and several islands in the Outer Hebrides; while ere long the species will probably be found incubating on some of the Inner islands. In Ireland it has frequently occurred, notably in September and October of 1891; and in 1886 its egg was obtained by Mr. R. J. Ussher from Tearaght, one of the Blasquets, off co. Kerry, the most western land (with the exception of Iceland) belonging to Europe, and birds were subsequently procured there as well as eggs.

Leach's Petrel has wandered to the coast of Norway; but it has only been met with on three occasions and at long intervals on

Heligoland, though storm-driven individuals have been taken on the coasts of Germany, Holland, Belgium, France, Portugal, and even as far up the Mediterranean as Sicily; while the Canaries and Madeira are visited. On the further side of the North Atlantic, Leach's Petrel has occurred in Iceland and Greenland; and it is common in America from Labrador to the Bay of Fundy, ranging southward to Virginia in winter. It is also found throughout the North Pacific, breeding from California to Alaska and the Aleutian Islands, as well as in the Commander and Kuril groups, nearer to Asia; and it visits Japan. So far as our present knowledge goes, this species is restricted to the Northern hemisphere. No fewer than twelve species of Petrels with forked tails are included by Salvin in this well-defined genus; and inasmuch as the bird which the Americans call the Fork-tailed Petrel is a different species, I have employed the name, Leach's Petrel, to avoid the perpetuation of confusion.

The egg—white, freckled and zoned with minute rusty spots, and measuring about 1·3 by ·97 in.—is laid in a burrow or hole of some kind; usually in the first half of June. Mr. John Swinburne—and afterwards Mr. Harvie-Brown—found a large colony nesting in the ruins of a deserted village on North Rona; and there the latter also obtained three Storm-Petrels, though these did not appear to have eggs. All the Leach's Petrels proved on dissection to be females, but on Grand Menan and other islands in the Bay of Fundy, where this species is very abundant, investigations have indicated that the male takes part in incubation. When dragged from their holes the birds showed little disposition to fly, being apparently dazed by the light of day, and when released, they invariably sought some dark retreat. A strong musky smell pervades this bird and its burrow, as in the preceding species. The food consists of small molluscs, crustaceans, and any greasy substances found floating on the water. The note resembles the syllables *pewr-wit, pewr-wit.*

The adult has the general plumage dark leaden-black above and sooty-black below, with a shade of ash-colour on the wing-coverts and the margins of the secondaries, which gives the bird a greyer appearance on the wing than the Storm-Petrel; upper tail-coverts chiefly white; tail sooty-black and considerably forked; bill black, legs and feet dusky. Length 8 in.; wing 6 in. The nestling being covered with long greyish-brown down, resembles a small long-haired mouse rather than a bird, as neither the wings nor the bill are visible.



MADEIRAN FORK-TAILED PETREL.

OCEANODROMA CASTRO (Harcourt).

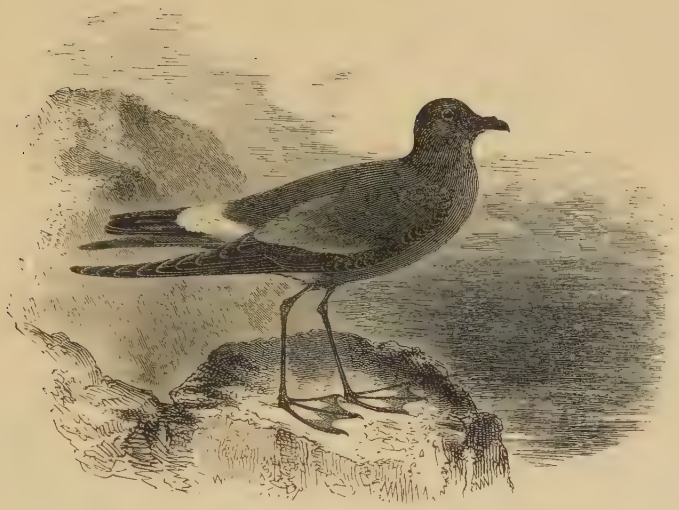
An example of this species was picked up dead on the beach at Littlestone in Kent, on the 5th of December 1895, and was examined in the flesh by Mr. Boyd Alexander, to whom it now belongs. It was exhibited at a meeting of the British Ornithologists' Club on the 29th of April following (Ibis 1896, p. 401).

This Petrel was known by the scientific name of *Oceanodroma cryptoleucura* (Ridgway), until Padre Ernesto Schmitz, of Madeira, drew Mr. Ogilvie Grant's attention to the fact that the species had been thoroughly diagnosed in 1851 by the late Mr. E. Vernon Harcourt, who found it on the Desertas islets, and named it *Thalassidroma castro*, because it was called "Roque de castro" by the Madeiran fishermen (Ibis 1898, p. 313). This discovery having been totally overlooked, the species was described as new by Mr. Ridgway in 1882, from examples obtained in the Hawaiian Islands, where others were subsequently procured for Mr. Scott B. Wilson, by Mr. Francis Gay (Aves Hawaiienses, pt. iv.). An American expedition to the Galápagos, moreover, met with this species in that group; while, passing to the Southern Ocean, there are specimens in the British Museum from Australia and the Island of St. Helena. In 'The Auk' for 1897, p. 297, Mr. W. Palmer states that after the severe storms of August 23rd to 27th 1893, two birds of this species were picked up within the limits of Washington city. To continue the list of wanderers, Mr. Herluf Winge, in his fourteenth Report of Birds which have occurred at the Danish Lights, records that in 1896 an example struck the light-ship at Drogden, a few miles south of Copenhagen, on the 19th of

September, and another was taken at Kobbergrunden in the Kattegat, on the 11th of October. The principal haunts of this species appear to be the waters and the islets of the Cape Verde group, and those round Madeira and Porto Santo, notably the Desertas already mentioned, as well as the Salvages, which also belong to Portugal, though rather nearer to the Canaries, and on all of these it breeds.

On his visit to the Salvages, in the spring of 1895, Mr. Grant was rather too early for eggs, but he subsequently obtained one from the Lime Island, Porto Santo, taken in June. It is described as "white, with an indistinct zone of light red and faint purplish underlying dots round the larger end": measurements 1·3 by ·96 in. (Ibis 1896, p. 54). In the Cape Verde group, Mr. Boyd Alexander found young or much incubated eggs by the middle of March, and he noticed that the burrows of this species ran further into the ground and were also more tortuous than those of the Frigate Petrel which was nesting in the same locality (Ibis 1897, pp. 96–97). At night the birds flitted about, uttering a note which Mr. Boyd Alexander renders as "I'm a nigger, I'm a nigger, I'm a nigger."

In this species the tail is only slightly forked, the outer feathers being little longer than the middle pair; while the upper tail-coverts are white, tipped with black, and there is a considerable amount of white at the bases of the tail-feathers. Otherwise the Madeiran Petrel is very similar to Leach's Petrel. Mr. Grant says that the female is decidedly larger than the male; her wing averaging 5·98 in., whereas that of the male is 5·8 in.



WILSON'S PETREL.

OCEANÍTES OCEÁNICUS (Kuhl).

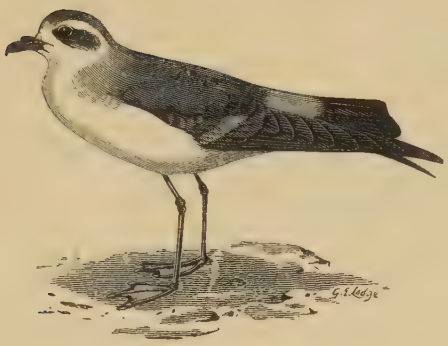
This remarkably long-legged Petrel was noticed and figured as *Procellaria pelagica* by Wilson (Am. Orn. vii. p. 90, pl. lx. fig. 6), under the impression that it was identical with the Storm-Petrel; but the earliest scientific description of it was given by Kuhl in 1820. In 1824 Bonaparte published a memoir on this and three more species, with the distinctive characters, measurements, and figures of each; and, in ignorance of Kuhl's name, proposed to call the bird *Procellaria wilsoni*, in honour of the distinguished ornithologist, whose name can, however, only be handed down to posterity in the trivial appellation. In his memoir Bonaparte says, "I have never learnt that it has been seen on the coasts of Europe. I killed one, that had probably strayed, near the Azores"; and this appears to be the first printed notice of the occurrence of Wilson's Petrel near the European side of the Atlantic. As regards the British Islands, Gould observed this species in abundance off the Land's End in May 1838, and in November of the same year the specimen now figured was found dead near Polperro in Cornwall; an example has been picked up near Chippenham in Wiltshire; two have been obtained near Freshwater in the Isle of Wight (the last in the autumn of 1888); the late Mr. F. Bond recorded one from Sussex; one was shot near Halifax in Yorkshire in November 1874; and three

have occurred in Cumberland, the latest of them in November 1890. Mr. Henry Evans secured an example on Jura early in October 1891, the first for Scotland. As regards Ireland, a specimen which was supposed to have been obtained in co. Dublin, was presented to Thompson in August 1840 by Glennon; while, on the 1st and 2nd of October 1891, examples were secured in co. Down and co. Antrim, respectively.

In France, three examples have been taken in the Gulf of Gascony, all of them in December, while stragglers have occurred on the coast of Provence; I have a bird, in moult, captured off Málaga on August 7th 1873; and Dr. Salvadori has identified a specimen in the University Museum of Cagliari, said to have been obtained off Sardinia. Mr. Godman found this Petrel common in summer about the Azores, and Mr. Meade-Waldo observed it occasionally in the Canaries; while it has been procured along the west coast of Africa as far as the Cape of Good Hope. Examples were obtained by the 'Challenger' Expedition, off the Antarctic ice-barrier, on February 14th 1874; the Rev. A. E. Eaton found the bird breeding on Kerguelen Island; it visits the Arabian Sea; and it ranges over the South Atlantic from Brazil to Australia and New Zealand, whence it can be traced across the South Pacific to Chile and Peru. In the North Atlantic it is common along the American coasts, visiting the West Indies and Mexico.

Nine eggs brought from Kerguelen by Mr. Eaton and described by me (Phil. Trans. clxvii. p. 164) are of a dull white colour with minute purplish-red spots, which usually form a zone at the broader end: measurements 1·3 by ·9 in. They were laid in January and February, in crevices and holes among shattered rocks or large boulders. The birds arrived at their nesting-places in the latter part of the previous November, but comparatively little was seen of them by day, though towards evening they used to fly over the water like Swallows, or follow the course of the valleys far away into the country. In food and general habits this resembles other small Petrels; in its anatomy, however, both Garrod and Forbes considered that it differed so widely from the majority as to be entitled to rank in a separate family, *Oceanitidæ*.

This bird has sooty-black plumage above and below, the quills and tail-feathers darker black; greyish-white edges to the wing-coverts and inner secondaries; white upper tail-coverts and thigh-patches; and a little white at the bases of the outer tail-feathers; black bill, legs and toes, and the *webs* of the last are *yellow* at their bases. Total length 7 in., wing 6 in., tarsus 1·4 in.



THE FRIGATE-PETREL.

PELAGÓDROMA MARÍNA (Latham).

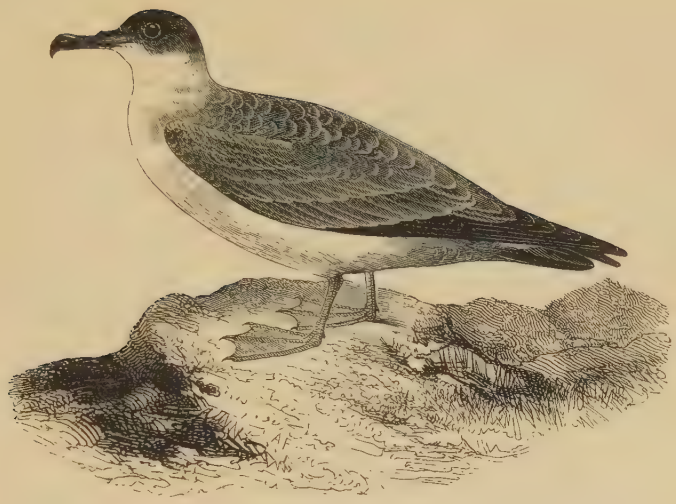
After a severe gale in November 1890, a number of sea-birds, which had been washed up dead on the outside of Walney Island, were taken to a local bird-stuffer at Barrow-in-Furness. Among them was a Wilson's Petrel, and also an example of this species, which was secured by the Rev. H. A. Macpherson, and sent up to the late Mr. O. Salvin for identification (Ibis 1892, pp. 602–604). On the 1st of January 1897, after heavy gales from the south-west, a young female was captured alive on the west side of the island of Colonsay, and forwarded in the flesh to Edinburgh, where it was identified by Mr. W. Eagle Clarke, and is now in the Museum of Science and Art in that capital.

The haunts of this species nearest to our shores are in the volcanic Salvages islets, already mentioned. On nearing that group, says Mr. Ogilvie Grant, numbers of these elegant birds were seen flitting along, close to the surface of the sea, with their long legs dangling beneath them, and just touching the water. After landing on the Great Salvage, he found that large colonies of this Petrel were breeding on the flat top of the island, in burrows dug out in the sandy ground, which were partly concealed by close-growing ice-plants. Beyond this interesting locality, the bird is known to occur off the Canary Islands; while it was long ago described by Latham from the South Seas. Gilbert, one of Gould's best collectors, found it nesting off Cape Leeuwin, the south-west point of Australia, as well as on Wallaby Island, one of the Houtmann's Abrolhos group, and it is known to breed in the Chatham Islands, to the south

of New Zealand, and in other similar places. The 'Challenger' Expedition found it in burrows on Nightingale Island, one of the Tristan da Cunha group, in the South Atlantic; while as a wanderer northward it has occurred on the coast of Massachusetts.

Mr. Grant obtained many specimens from the burrows on the Great Salvage Island, and there, strange to say, the sitting birds are often killed and have their brains eaten by mice, which also suck the eggs. Out of twelve sitting birds three were males; and the most advanced eggs were but half-incubated on April 27th. These were white, more or less finely spotted—and often zoned towards the larger end—with dark red and purplish dots, but a few were uniformly spotted all over the shell: measurements 1·4 by 1 inch (*cf.* Ibis 1896, pp. 51–53). On the Rombos islets, belonging to the Cape Verde group, Mr. Boyd Alexander found that all the incubating birds were females; three males, which were also captured in the burrows, being merely "keeping company." Here, as on the other islets, breeding was earlier than in the Salvages. The birds which were disturbed ran along the ground in a dazed condition, and were promptly picked up by Black Kites; in fact the general evidence seems to be that this species is very nocturnal in its habits. The note is described as grating, or grunting.

The adult has the crown of the head, nape, and a patch behind the eye dark slate-grey; forehead, lores and eye-stripe white; upper part of mantle grey, wing-coverts brown, quills blackish; lower back and tail-coverts clear grey, with some white at the bases of the feathers; tail-feathers black, ashy at their bases; under surface white, mottled with grey on the sides of the neck, flanks, and under tail-coverts; bill and feet black; webs of toes yellow. Length 7·75 in.; wing, 6·25 in males and 6·38 in females.



THE GREAT SHEARWATER.

PUFFÍNUS GRAVIS, O'REILLY.

The Great Shearwater is a fairly regular visitor to British waters, though it does not often make a very near approach to land. In some years it appears in considerable numbers from August onwards off Cornwall and the Scilly Islands, where it is called the "Hackbolt"; it is also not infrequent off Devon and Dorset, and in the latter it has been obtained as early as the month of June; while on the east coast many have been seen off Flamborough in September, and several in Norfolk and Suffolk—one of them as late as November 10th. As regards Scotland, on July 13th 1885, the Rev. H. A. Macpherson found a dead bird in Skye, and of late years examples have been obtained off Tiree and at St. Kilda, while birds have been noticed in other waters of the Hebrides, as well as off the Orkneys and Shetlands; and many frequent the fishing-banks near Rockall. On the shores of Ireland this species has been captured on several occasions, and under the name of "Hagdown" it appears to be well known to the fishermen, who sometimes take it with a hook.

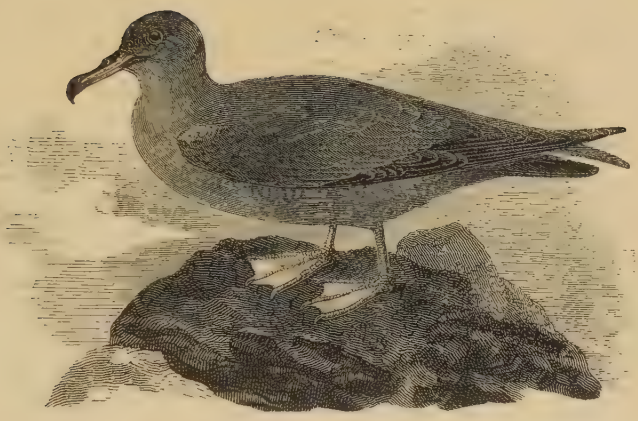
The Great Shearwater occasionally visits the coast of Norway, and in November 1879 a flock was observed off Heligoland; while I saw many off Normandy in the autumn of 1898. It has been noticed in the Færoes and in Iceland, and visits the south of Greenland, though Reinhardt was mistaken in supposing that it bred there. Capt. J. W.

Collins states that on the fishing-grounds off New England and British North America it arrives in May, remaining till October or November—according to the time of the first snow; and, although in the course of thirty years' experience in taking birds of this and the next species for bait he must have seen thousands opened, he never found one which showed any signs of breeding. The Great Shearwater probably resorts to some of the islands in the Southern Ocean for the purpose of reproduction; specimens having been obtained off the Falkland Islands and Tierra del Fuego, as well as near the Cape of Good Hope. Round the Azores and the islets between Madeira and the Canaries the resident species is *P. kuhli* (identical with *P. borealis* of Cory), which visits the western coasts of France and the Peninsula, and is abundant throughout the Mediterranean; this species is of a much paler brown on the upper parts, and has a yellow-coloured and deeper bill.

Nothing is known of the nidification of the Great Shearwater, for the egg figured by Hewitson from the Madeiran Desertas is that of *P. kuhli*. The food consists chiefly of squid, and Mr. Gurney found the horny jaws of small cuttle-fish in the stomach of a bird shot near Flamborough; but any animal substance is greedily swallowed, and, as already mentioned, this species is systematically taken with a hook, to furnish bait for fish. When alighting this Shearwater strikes the water with great violence—in a manner quite different from that of a Gull—and then dives; pursuing its prey under water with great rapidity, and often tearing bait from the fishermen's hooks. In the Atlantic it may be seen skimming the surface of the water without any apparent effort, either wing alternately depressed or sharply elevated; but at times it flaps its pinions freely.

The adult has the bill dark brown; head and nape ash-brown; neck whitish, when fully extended in flight; feathers of the mantle ash-brown with paler edges; quills and tail-feathers blackish; upper tail-coverts mottled brown and white; under-parts white, with some pale brown running up the centre of the abdomen and on the thighs; under tail-coverts brown; legs and feet pinkish-white in life, drying yellow. Length 19 in.; wing 12·7 in.

In 1822, Faber, who had never handled a specimen, gave the name *Procellaria major* to a bird which was probably of this species, and the name has been widely adopted; but in 1818 O'Reilly had fully described the bird, with an excellent figure, under the name of *Procellaria gravis* (Voy. to Greenland &c., p. 140, pl. 12, fig. 1).



THE SOOTY SHEARWATER.

PUFFINUS GRÍSEUS (J. F. Gmelin).

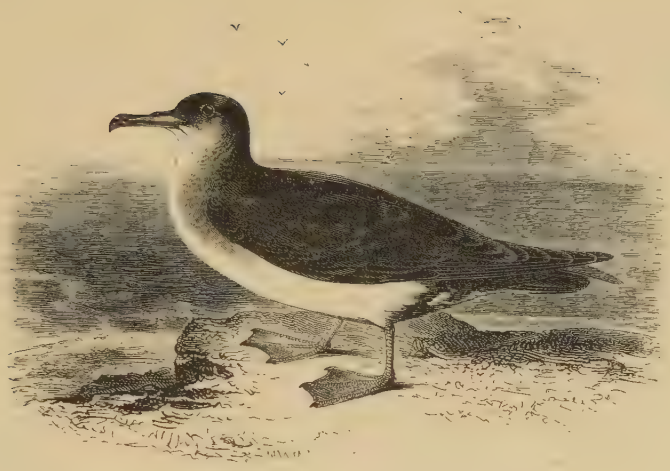
The Sooty Shearwater was for many years considered to be either a dark form or the young of the Great Shearwater, and there is consequently some difficulty in saying to which of these species many of the earlier records refer. Identified examples have been obtained—during the months of our summer and autumn—at North Berwick in Scotland; near Newbiggin in Northumberland in 1897; along the coast of Yorkshire, especially off Flamborough; near Lynn in Norfolk; and in the Channel from Sussex to Cornwall; but this species is everywhere much rarer than its larger congener. In Ireland individuals have been secured on the coast of Kerry and in Belfast Lough, while others have been observed.

This Shearwater has occurred in the Færoes and once near Heligoland; while it visits the coasts of France, and has been recorded from Portugal. It is generally distributed over the North Atlantic, and is well known as the "Black Hagdon" on the North American fishing-banks, where, however, Capt. Collins says that it is far less plentiful than the Great Shearwater. All its breeding-haunts appear to be in the southern hemisphere, and it is from the Chatham group and other islands and coasts in New Zealand waters that our knowledge of its nidification is derived. In the Pacific Mr. A. A. Lane met with this species in vast numbers on the coast of Chile in the early part of November, probably on the way to their

breeding-places; while it ranges northward to California and the Kuril Islands during the summer of the northern hemisphere.

According to the experience of Mr. Travers in the Chatham Islands, this species makes, in the peaty ground, a burrow which runs horizontally for about three or four feet and then turns to the right or left; while a slight nest of twigs and leaves at the extremity serves as a receptacle for the single white egg. From a series of measurements given by Dr. H. O. Forbes, the average appears to be 3 in. by 2 in. On the island of Kapiti, off New Zealand, this species was found breeding in February and even as late as March. The male assists in the work of incubation, and the young birds, which are very fat, are esteemed a delicacy by the Maories, who also hold them over their mouths in order to swallow the oily matter which is disgorged. The old birds roost on the shore, and are very noisy during the night. The food of this species is probably of the same nature as that of its congeners.

The adult male has the head, neck, and back dark brown, with lighter margins to the feathers of the latter; quills and tail-feathers blackish; under-parts of a rather greyer brown, each feather being paler in the centre than at the edge; bill dark brown, paler at the base of the lower mandible; legs—in fresh specimens—blackish on the outer side and lilac-grey within. Average length 18 in., wing 12 in.; the female being slightly smaller. The young scarcely differ from the adults, except in the greater freshness of plumage; and this remark applies to nearly all the Petrels. On the wing this bird looks very black at a distance.



THE MANX SHEARWATER.

PUFFINUS ANGLÓRUM (Temminck).

THE LEVANTINE SHEARWATER.

PUFFINUS YELKOUANUS (Acerbi).

This species is widely distributed over British waters throughout the year; and in spring it resorts to many of the most retired parts of our coasts, especially turfy islands and lofty cliffs with ledges, in which it burrows. It owes its trivial name to Ray, who calls it the "Puffin of the Isle of Man" in Willughby's 'Ornithology,' and until a comparatively recent date it was abundant on the 'Calf' of Man. Southward it nests on the coast of Wales, notably on Skomer off Pembrokeshire; perhaps also on Lundy, where it is well known as the "Cuckle"; and in the Scilly group, off Cornwall, where it is termed "Skidden" and "Crew." On the east side of the mainland of Great Britain, though the bird is plentiful, especially near fishing-banks, no nesting-places are known; but there are several in the Orkneys and Shetlands, where the "Lyrie," as the bird is called, is highly appreciated as an article of food by the natives, who are amusingly secretive and even wilfully inaccurate on the subject. A large colony exists on Eigg, and there are several which are smaller in other islands of the Inner Hebrides, as well as a few in the Outer group. As regards Ireland, Rathlin Island, the islets and coasts of Donegal and Mayo, the Kerry Skelligs, the Saltees, and some stations in St. George's Channel may be

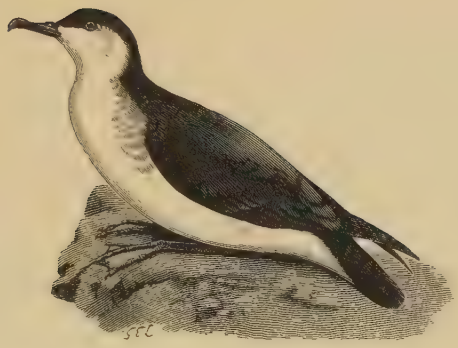
mentioned; and there are probably many others. In Erse and Gaelic the bird's usual name is "Fachach."

This Shearwater breeds in considerable numbers in the Færoes, and is met with on the coast of Norway, as well as throughout the North Sea; it is also plentiful in the south-west of Iceland, and has occurred in South Greenland; while it is recorded from the Azores, Madeira and the Canaries. In American waters the Manx Shearwater appears to be rare, and Capt. Collins has not observed it on the fishing-grounds; but I saw two examples outside the Straits of Belle Isle on August 13–14th 1884, looking very black as compared with the Great Shearwater, and a bird from Brazil (formerly in my collection) is in the British Museum.

The single white egg is deposited in a slight nest of dry grass at the end of a burrow, and is smooth in texture, with little of the musky odour which is so pronounced in that of the Fulmar: measurements 2·4 by 1·65 in. Incubation, in which the male takes part, sometimes commences early in May; while the nestling remains in its home until long after it is fully fledged, becoming enormously fat. The food consists of surface-fish, offal, small cuttle-fish &c.; the oil vomited by the bird is green, but leaves a yellow stain. The flight is rapid and skimming, but—contrary to a popular idea—this species often settles on the sea; and it dives freely, remaining under water for about 20 seconds. It is usually nocturnal or crepuscular in its habits, but large flocks may also be seen by day. The note is *cuck-cuck-ōō*, generally repeated three times.

The adult has the crown, nape, and upper parts sooty-black; under-parts white; sides of the neck mottled with greyish-brown; behind the thighs a patch of sooty-brown; bill blackish-brown, paler at the base; legs and feet flesh-coloured, the outer toes darker. Total length 15 in.; wing 9·5 in. The young bird resembles the adult and has white under-parts.

The Levantine Shearwater is the representative of our bird throughout the Mediterranean, and is the well-known *âme damnée* of the Bosphorus. Two examples from Devon are in the British Museum, and Mr. J. H. Gurney has one from that county; while I believe that another was obtained off Northumberland by the late John Hancock, and one, procured off Scarborough on February 5th 1899, was sent in the flesh to the British Museum. It is browner in tint than our Manx Shearwater, and not only are the under tail-coverts and flanks dusky-brown, but the immature bird is dusky on the belly; it is moreover a larger species throughout; wing 10 in.



THE LITTLE DUSKY SHEARWATER.

PUFFINUS ASSÍMILIS, Gould.

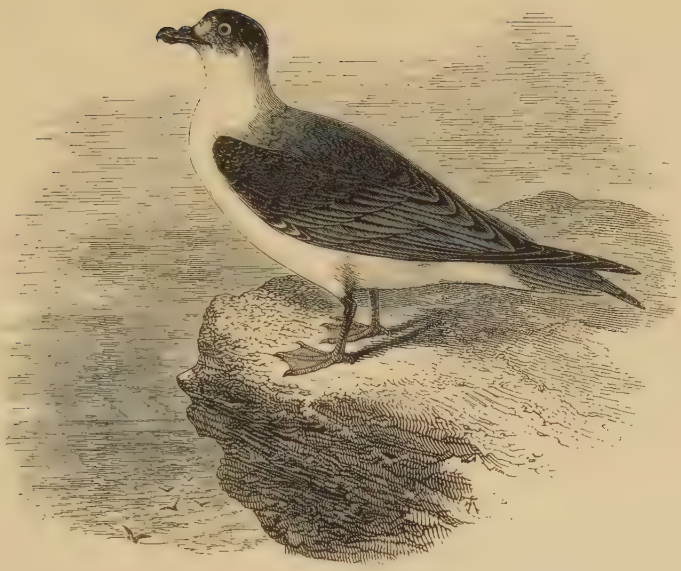
The subject of this illustration was brought to Yarrell by Mr. B. Blackburn of Valentia Harbour in co. Kerry, who afterwards sent a note to the effect that the bird flew on board a small sloop in that vicinity late in the evening of May 11th 1853. This specimen was exhibited at a meeting of the Linnean Society in the following June, and is now in the Dublin Museum. In 'The Zoologist' for 1858 the late Mr. H. Stevenson stated that he had examined a second example, which was found dead on the Earsham estate, near Bungay in Suffolk, about April 10th of the above year; and this, the property of Capt. Meade, of Earsham Hall, was exhibited by the late Mr. Osbert Salvin, at a meeting of the Zoological Society on May 16th 1882. According to the original account, the bird had probably been driven inland by a gale and had come in contact with a tree, since it had a wound on one side of the head as if from a violent blow. Both these specimens were originally referred to the Dusky Shearwater, *Puffinus obscurus*; but in the 1st Edition of this work it was hinted that the names would probably have to be interchanged, in view of later knowledge and increased material. Through the kindness of the owners, a re-examination of both examples has taken place, with the result that our visitors prove to be *P. assimilis*.

This small Shearwater breeds on the islets of the Madeiran group, especially the Desertas, where the late Mr. E. Vernon Harcourt, and subsequently Mr. Hurrell, obtained birds and eggs; it also nests on the Salvages, nearer to the Canaries; as well as in the Cape Verde Islands. Southward, it is found in the Australian and New Zealand

Seas. Its larger and darker ally, *P. obscurus* (described in the 1st Edition of this work), has a more extensive range, but as regards the Atlantic it chiefly frequents the American side, and its most northern breeding-place appears to have been in the Bermudas. It is true that an example of *P. obscurus*, formerly in Gould's collection, is now in the British Museum, and is said to have been obtained in Devon, but there is no confirmatory evidence, and Gould did not so much as allude to the supposed occurrence of the species in his 'Birds of Great Britain.'

On the Great Salvage Island Mr. Ogilvie Grant procured downy young in various stages; also one late egg, almost fresh, pure white, perfectly oval in shape, and large for the size of the bird: measurements 1·9 by 1·35. On some islets in the Cape Verde group Mr. Boyd Alexander found this species breeding, not only in holes, but beneath rocky boulders and in small clefts of the rocks; and he describes it as gliding like some large soft-winged bat past the camp-fire, for ever uttering its weird cry *karki-karrou*, *karki-karrou*, *karki-karrou*.

The adult has the upper parts slaty-black, with a bluer tinge than in *P. obscurus*; under surface, including the under tail-coverts, of a pure white, which extends over the lower part of the lores and close up to the orbit of the eye, the dividing line on the sides of the neck being more definite than in *P. obscurus*; under wing-coverts and the outer portion of the inner web of the primaries white, except towards the tip; bill, black; tarsi and toes blackish, webs yellow. Length 10·5, wing 7·4 in.



THE CAPPED PETREL.

ŒSTRÉLATA HÆSITÁTA (Kuhl).

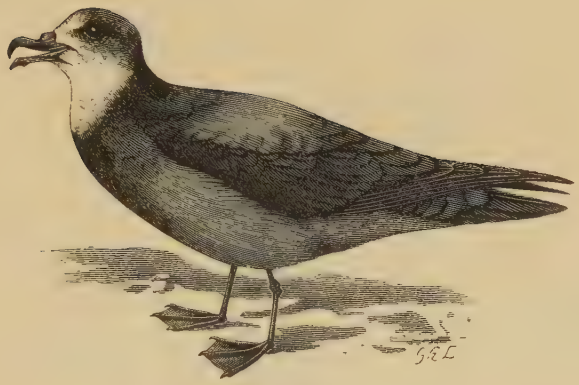
The subject of the illustration was observed by a boy in March or April 1850, on a heath at Southacre, near Swaffham in Norfolk, flapping for some time from one furze-bush to another, until it got entangled in one of them, and was secured; when, although exhausted, it had strength enough remaining to bite the hand of its captor, who thereupon killed it. The late Mr. Newcome, of Hockwold Hall, near Brandon, fortunately happened at the time to be hawking in the neighbourhood of Swaffham; and his falconer, John Madden, observing the boy with the dead bird, procured it from him, and brought it to his master, by whom it was skinned and mounted, and in whose collection it found a place. A detailed account of this bird, with two illustrations, is given by Professor Newton in 'The Zoologist' [1852], p. 3691.

In the Museum at Boulogne there is a Capped Petrel *said* to have been shot near that town many years ago by its donor, a sportsman long since deceased; but the pedigree cannot be considered quite satisfactory. A Petrel of the genus in the Buda-Pesth Museum has lately proved to have been wrongly assigned to this species. No other occurrences are recorded from Europe, and

in fact little is known of the distribution or head-quarters of this Petrel. An example from Hayti is in the British Museum; Paris has three, obtained by L'Herminier in the island of Guadaloupe, where, however, Mr. Ober failed to rediscover the bird; while another in Paris and one in Leiden are from unknown localities. On the Continent of North America a wounded individual was picked up on a salt lagoon on the east side of Florida in 1846; another was shot on Long Island in July 1850 after a severe storm; three are recorded in 'The Auk' for 1894 as having been obtained inland after the autumnal gales of 1893; and yet another was obtained in New York State in January 1895.

In an excellent article in 'The Transactions of the Norfolk and Norwich Natural History Society,' vol. v. pp. 24–39, Col. H. W. Feilden has summed up all that is known of the distribution of this species in its former breeding-haunts in the Antilles; and has traced its successive disappearance from each, up to the last resort known, namely on the Morne au Diable, in the Island of Dominica. There, a coloured man, who had found the birds in their burrows in the dense dripping forest, at about 2,000 feet of elevation, as recently as 1882, showed Col. Feilden the holes, but his dogs plainly indicated that no birds were within, and the guide repeated that a species of opossum, recently introduced, had destroyed them. Many of the Petrels appear to frequent the land merely for the purpose of reproduction, after which they disperse over the ocean and can seldom be obtained or identified; while their breeding-seasons seem so little subject to rule (within the tropics) that the best period for search cannot be laid down. In case any of my readers should ever have the opportunity of landing on the small islands nearest the coast of Brazil known as Trinidad and Martin Vas, in about lat. 20° 30′ S. and long. 29° W., they will probably make some interesting discoveries in Petrels, even if they do not meet with this particular species. It is no doubt nocturnal in its habits.

The adult has the crown and nape dark brown, hind-neck white, cheeks and ear-coverts greyish; mantle dark brown; upper tail-coverts white; central tail-feathers chiefly brownish-black, the rest more or less white on their basal portions, but broadly edged with brown; forehead and under-parts white; bill black; legs and feet dusky-yellow. Length 16 in., wing 11·3 in. The immature bird is believed to be mottled with brown on the forehead and to be duller in tint on the upper parts.



THE COLLARED PETREL.

ŒSTRELATA BRÉVIPES (Peale).

The subject of this illustration was presented to the British Museum by Mr. J. W. Willis Bund, who obtained it with a very satisfactory history. The bird was killed at the very end of November or the beginning of December, 1889, between Borth and Aberystwith, and was first shown to the Rev. J. M. Griffith, vicar of the parish of Llanfihangel Geneu'r Glyn, who advised the man who shot it to take it to the Aberystwith bird-stuffer, Hutchins, from whom Mr. Willis Bund afterwards bought it. A short notice of the occurrence was given by Mr. J. E. Harting in 'The Zoologist' for 1890, p. 454, and a full account of the species and its distribution, with a coloured figure, appeared in 'The Ibis' for 1891, pp. 411–414, pl. ix, from the pen of the late Mr. Salvin. At that time the bird was known as *Œ. torquata* (Macgillivray), but it subsequently proved to be identical with the *Procellaria brevipes* of Peale, whose name has considerable priority.

The home of this Petrel is in the Western Pacific, and southward to the great ice-barrier in lat. 68°, whence Peale obtained his specimen. John Macgillivray met with it on Aneiteum, one of the New Hebrides, and specimens were subsequently obtained from the islands of Tanna and Erromanga, as well as in the Fiji group. "Macgillivray says that on Aniteum this Petrel breeds in burrows on the wooded mountain-tops in the interior of the island, the highest of which attains an elevation of 2,700 feet. A young bird, not many days old, and covered with black down, was brought to him

on the 14th February, but he did not obtain any eggs. The native name, he adds, is 'Katébu'" (Salvin, *loc. cit.*).

The adult has the crown slate-grey; upper surface rather darker grey, with a brown tint on the scapulars, wing-coverts and quills; upper tail-coverts grey; tail-feathers blackish, greyer externally; forehead and throat white, with grey mottlings on the cheeks and a dark patch behind the eye; breast and under-parts white, with a grey pectoral band, or else, as in the Aberystwith specimen, generally suffused with grey below the throat; under wing-coverts and axillaries white; bill black; tarsi and proximal half of the toes (except the outer one) yellowish, the rest black. Length about 11·5, wing 8·7 in.

BULWER'S PETREL.

BULWÉRIA BULWERI (Jardine & Selby).

The only authentic instance of the occurrence of this species in Great Britain is that of an example found dead on the banks of the Ure near Tanfield in Yorkshire on May 8th 1837, which was brought to Capt. Dalton (son of the Col. Dalton who provided Bewick with the Storm-Petrel figured in his 'British Birds'). This specimen was described and figured by Gould in Pt. xxii. of his 'Birds of Europe' (1837); but he did not include the species in his 'Birds of Great Britain' (1873) and omitted all mention of his former sponsorship in the Introduction, which at one time made me suspect that later information had cast some doubt on the statement. However, Messrs. W. Eagle Clarke and James Carter took considerable pains to investigate the matter, and were successful in tracing the identical bird, which is now in the Museum at York. Further details are given in the 'Proceedings' of the Zoological Society for 1887, p. 562, and also in 'The Naturalist' for 1888, p. 156.

The first published account of this Petrel is given by Jardine and Selby (Ill. Orn. ii. pl. 65), who conferred on it the name of *Procellaria bulweri*, after a Mr. Bulwer, who was for some time a resident in Madeira, and to whom they were indebted for the specimen they described and figured. Webb, Berthelot and Moquin-Tandon state ('Ornithologie Canarienne,' 1841) that this species is very common on the small island of Alegranza, where it breeds in

holes in the rocks, and is known by the name of 'perrito,' or 'little dog,' from its cry; while Mr. Meade-Waldo describes it as fairly common, and breeding on all the Canary Islands (Ibis, 1893, p. 207). About the year 1850 Dr. Frere obtained a considerable number of birds and eggs from the Desertas, near Madeira, where Mr. Hurrell also took a good many in 1851; while Mr. F. D. Godman gives (Ibis, 1872, p. 162) an interesting account of his visit to those islets in 1871. Mr. Ogilvie Grant met with the bird on the Salvages, and throughout Madeiran waters. Leaving the Atlantic, we find this bird in the Hawaiian group, as well as in the Bonin and Volcano Islands, far to the south of Japan, and it has been obtained near Amoy.

Mr. Godman writes:—"We found plenty of Bulwer's Petrels sitting on their eggs, which were in holes or under rocks, and usually about as far in as one could reach with one's arm. They build no nest, but lay their eggs on the bare rock. I did not find more than one egg in each nest. I secured several birds and eggs, and kept some of the former alive. It is curious to watch them crawling along the ground; for they cannot fly unless they get to the edge of a rock; they waddle along on their feet, and, when they come to a steep place, use the sharp-pointed hook of their beaks to draw themselves up with. They seem to dislike the light, and hide themselves under a rock or crawl into a hole as soon as possible; I never saw one of this species flying about in the daytime, though some of the smaller ones are common enough." The egg is pure white: measurements 1·7 by 1·2 in.

The adult has the plumage almost uniformly brownish-black, paler on the edges of the great wing-coverts; tail much graduated and cuneate; bill black; legs and toes reddish-brown, webs dusky. Length 11 in., wing 8 in. It is a highly specialized form, with only one near ally, *Bulweria macgillivrayi*, from Fijian waters.

Examples of the Petrel familiarly known as the Cape Pigeon (*Daption capensis*) are recorded by More from the neighbourhood of Dublin on October 30th 1881, by the Rev. M. A. Mathew from near Bournemouth (Zool. 1894, p. 396), and by Mr. Salter from the Dovey in 1879 (Zool. 1895, p. 254). This species belongs essentially to the southern hemisphere, and I am not aware that it has ever been proved to follow ships across the equator; but the ease and frequency of its capture with hook and line are notorious, and many birds have been carried hundreds and thousands of miles before being liberated. I do not believe that this species has ever wandered to the United Kingdom.

THE FULMAR.

FÚLMARUS GLACIÁLIS (Linnæus).

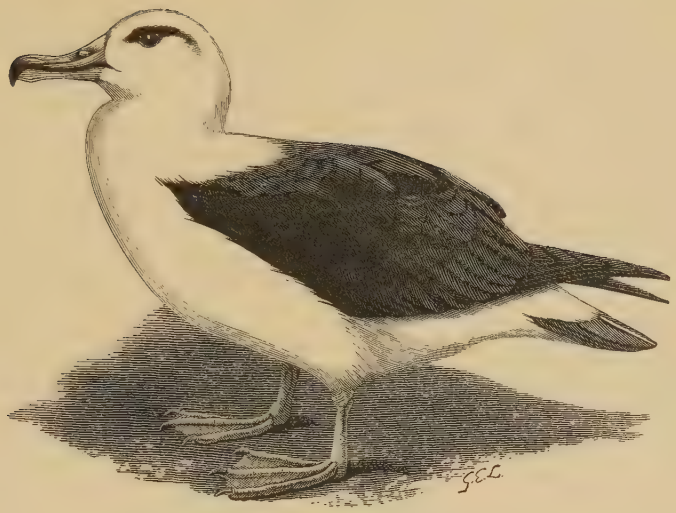
This Petrel is seldom met with near the southern and western coasts of England except during the colder months, and even then chiefly after tempestuous weather, when it is sometimes driven far inland; but on the fishing-grounds about thirty miles off the east coast it is by no means uncommon, and, when the herring-nets are being hauled, birds are sometimes taken by the hand, owing to their voracity. In Ireland few examples have actually been obtained, but I have seen plenty within eight hours by steamer from Lough Foyle. In Scotland, where the Fulmar is frequently observed in winter, it has long been known to breed in the St. Kilda group, and has been seen in summer round the Flannans and North Rona; while in the Shetlands, where it began to nest on Foula in June 1878, it has now spread to Papa Stour, Esha Ness, and two places in Unst, and had reached the Noup of Noss by the summer of 1898.

In the Færoes, where the Fulmar was first noticed as a breeding-species about 1839, it is now common. Judging by the descriptions

of the older ornithologists, as well as by specimens, it would appear that, until recently, the birds found nesting as far north as that group had white under-parts, and their young in the first plumage resembled them—as I pointed out in 'Yarrell,' vol. iv. p. 5, as long ago as 1884; but further north a form with greyish under-parts had also been observed, and this phase seems to be making its way southward, even to the Scottish islands. In Iceland, where the species is very common, the grey race is said to predominate in the north, and the same is the case on the western side of Davis Strait and Baffin Bay, though at Ovifak in Greenland the light-breasted bird nests in myriads; round Spitsbergen both forms occur, but the grey-breasted bird forms a large majority; one or both phases breed on Franz Josef Land; while a Fulmar of some kind was met with by Mr. Popham in long. 77° E. in the Kara Sea, as well as by Dr. Nansen in long. 130° E., and far to the north of the Lena delta. Bering Sea is inhabited by *F. rodgersi*; and *F. glupischa*, which has a light and a dark phase, frequents the North Pacific. In winter the Fulmar has been met with about as far south as lat. 43° in European waters, and in America it is well known as the "Noddy" on the fishing-banks off Massachusetts and Maine.

The single egg is laid on a ledge or in a slight excavation on the grassy shelf of a lofty cliff; its shell—which is roughly granulated and has a strong musky smell—is at first pure white, with occasionally a few minute reddish-brown spots: measurements 2·9 by 1·9 in. Both sexes incubate, and a low *croon* is sometimes uttered. Large numbers of birds are annually taken by the St. Kildans, who make use of the clear amber-coloured oil which the bird vomits on being seized, and with which it nourishes the young. The Fulmar is a constant attendant on whalers, sealers &c.—who know it as the "Mollymawk"—in order to obtain fatty substances and animal offal: but I never saw it take any food while on the wing, and it always settles on the water to feed, just as an Albatross does. The pinions are often flapped slowly in an owl-like manner, but in scudding they are held very straight—a peculiarity by which the Fulmar may easily be distinguished from a Gull at a distance.

The adult has the mantle and tail grey, quills dusky; head, neck and under-parts either white or of varying shades of grey; front part of the bill yellow, sides yellowish-white, nasal tubes olive-colour; legs and feet ash-colour. Length 19 in.; wing 13·25 in. The young bird is slightly smaller, and has a darker bill; that part being still darker in the grey form.



THE BLACK-BROWED ALBATROSS.

DIOMÉDEA MELANÓPHRYS, Boie.

On July 9th 1897, an exhausted individual of this species was captured on the Streetly Hall Farm, near Linton, in Cambridgeshire, and was sent by Mr. S. Owen Webb to Mr. Travis, a taxidermist at Bury St. Edmunds (Ibis 1897, p. 625). Through the good offices of the Rev. Julian Tuck, Col. E. A. Butler and Mr. J. H. Gurney, the specimen was sent to London for the inspection of Mr. Salvin and others. Mr. Southwell has neatly remarked that after all the species was only revisiting the haunts of its remote ancestors, for the bones of an Albatross of medium size, from the Suffolk "red crag" near Ipswich, have been described and figured by Mr. R. Lydekker.

For some years past it has been an established fact that birds of this species occasionally reached the Northern Atlantic. On June 15th 1878, Capt. David Gray, of the 'Eclipse' whaler, when in lat. 80° 11′ N., and long. 4° E., obtained a Black-browed Albatross, which is now in the Peterhead Museum; while in the log of the 'Eclipse' for May 2nd 1885 there is the record of a bird having been seen in 74° N., which, considering the experience of its observers, may fairly be assigned to the same species. In 1893 a Black-browed Albatross was shot near Mygganaes, in the Færoes, and from a long account given by Mr. Knud Andersen, it appeared

that this individual had frequented the above island, and lived amicably with the Gannets, for some thirty or forty years. On June 18th 1894, Mr. Harvie-Brown saw an Albatross of the size of this species when about 20 miles off the Orkneys. The true home of the Black-browed Albatross is, however, in the Southern Ocean, where the bird is one of the most abundant members of the genus; multitudes breeding on the Chatham, Stewart Auckland, Campbell, Antipodes and other Islands within about 400 miles of New Zealand, apparently the head-quarters of the species. The 'Challenger' Expedition did not find it breeding on Kerguelen, though it occurs there, and throughout the South Atlantic; while it is abundant on the sea-shore and even in some of the bays of South Africa. It wanders along the coast of South America, and has been recorded from California.

Mr. W. Dougall (quoted in Sir Walter Buller's 'Birds of New Zealand,' vol. ii., pp. 199–200) gives an interesting account of his visits to some of the colonies on the islands mentioned. On one of the Campbells the Albatrosses were nesting in hundreds, from the region of tussock-fern and ti-tree scrub at 800 feet, up to the top at 1,866 feet where undergrowth had become sparse; their nests of moss and earth being built up about four inches above the surface of the ground, and the materials taken from the soil, in such a way as to leave a trench all round the pile. The female never leaves her nest during incubation, a period of about 60 days, and is fed by her consort. Normally one egg is laid, though exceptionally two have been found in the same nest; the colour is creamy-white, with surface spots of yellowish-brown: measurements 4·3 by 2·2 in. This species feeds on medusæ and mollusca, with any floating refuse thrown overboard from ships; and even the remains of a Diving Petrel have been found in its stomach. In flight and general habits it resembles the often-described Wandering Albatross.

The adult has a short slaty-black band before and behind the eye; back and wings brownish-black; interscapular region cinereous, shading into white at the base of the neck; tail-feathers slate-grey, with white shafts; head and under-parts white; under wing-coverts white, with a wide greyish-black border along the edges of the wing; bill yellowish horn-colour, tip darker. Length 27–29 in.; wing 17–19 in. The smaller dimensions suit a young bird, such as the Cambridge example; and in this the superciliary streak is not very marked; while the outer web of the outside tail-feather on each side is conspicuously whitish. In this specimen the legs and feet were described as "fleshy-blue."

APPENDIX.

WHITE'S THRUSH (p. 11).

In 'The Field' for November 5th 1898, Mr. Peter Spicer, taxidermist, of Leamington, stated that he had just received an example shot at Packington, near Coventry.

BLUETHROAT (p. 35).

For SUECIA read SUECICA.

NIGHTINGALE (p. 39).

For the supposed Irish specimen, see RUFOUS WARBLER below.

BARRED WARBLER (p. 51).

For *three* (in Norfolk) read *four*; and then add:—one, in Norfolk, Rev. H. H. Slater, August 27th 1897; one, near North Cotes, Lincolnshire, Mr. G. H. Caton Haigh, September 5th 1897; one, Mr. O. V. Aplin, Bloxham, Oxon, November 28th 1898.

RUFOUS WARBLER (p. 73).

The first Irish example was shot at the Old Head of Kinsale in September 1876. It is in the Museum of Queen's College, Cork, and, until quite recently, was supposed to be a Nightingale (Ussher, Irish Nat. 1899, p. 52).

RADDE'S BUSH-WARBLER.

(Inserted, with figure, as pp. 73*–74*).

WHITE WAGTAIL (p. 123).

In the spring of 1898 a considerable passage of birds was noticed in the west of Ireland, and breeding probably took place in co. Mayo.

WATER-PIPIT (p. 141).

An immature bird was obtained by Mr. Caton Haigh in Carnarvonshire, on December 3rd 1897.

WOODCHAT (p. 153).

A young bird of this species was killed by striking the Blackwater Bank light-ship, co. Wexford, on the night of

August 16th 1893, and its foot and wing were sent to Mr. R. M. Barrington (Ibis 1899, p. 158).

SERIN (p. 177).

A cock bird was taken and another bird was seen, near Yarmouth, on April 1st 1897 (J. H. Gurney).

SCARLET GROSBEAK (p. 197).

See under next species.

PINE-GROSBEAK (p. 199).

The female mentioned (lines 2–4 from foot) as captured near Yarmouth, is a Scarlet Grosbeak and not a Pine-Grosbeak.

HAWK-OWL (p. 305).

A female of the Old World form of this Owl was obtained in Aberdeenshire on November 1st 1898 (G. Sim, Ann. Scot. N. H. 1899, p. 49).

SPARROW-HAWK (p. 334).

For *seven* (line 14) read *five*.

FLAMINGO (p. 395).

After a heavy gale from the south on 26th and 27th September 1898, a Flamingo was observed on the 28th on an estuary known as the Traeth-bach in Merionethshire. There it remained for nearly a month, and was shot by Mr. G. H. Caton Haigh on the 21st of October. It was in good condition and showed no sign of having been in captivity (Zool. 1899, p. 29).

PINK-FOOTED GOOSE (p. 403).

Read "Lough Swilly, co. Donegal" for "near Belfast" (2nd line from foot).

KING-EIDER (p. 461).

A male, obtained in the Shetlands on February 24th 1899, was sent to Mr. Harting in the flesh, and exhibited by him at a Meeting of the Linnean Society on March 2nd.

BAILLON'S CRAKE (p. 513).

One, near Thurso in September 1898 (W. Arkwright, Ann. Scot. N. H. 1899, p. 50).

MACQUEEN'S BUSTARD (p. 527).

A female was shot in Aberdeenshire on October 24th 1898 (W. Eagle Clarke, Bull. B. O. C., No. lv.).

AMERICAN SPOTTED SANDPIPER.

(Inserted, with figure, as pp. 605*–606*.)

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PRINTED BY
WOODFALL AND KINDER, LONG ACRE,
LONDON

559865